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# ALBANY MEDICAL ANNALS

Journal of the Alumni Association of the Albany Medical College

VOLUME XXX

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Richard M. Pearce, M. D.

## Richard M. Pearce, M. D.

### Director 1903-1908

Dr. Richard M. Pearce was appointed director of the Bender Hygienic Laboratory, September 1, 1903. Leaving his position with the pathological department of the University of Pennsylvania, Dr. Pearce came to Albany and began at once what proved to be a most successful and satisfactory work. In the Albany Medical College he became an able and efficient teacher of pathology, bacteriology and histology and was elected to full professorship after his first year, which position he held with credit to the Medical College and honor to himself until his resignation, September 1, 1908. The contract work done by the laboratory under Dr. Pearce for the State of New York and the city of Albany in the examinations of water, blood, sputum, cultures, etc., was well and promptly done and gave entire satisfaction. In addition to the teaching, state and city work, autopsies and pathological work, Dr. Pearce carried on an independent line of research work, much of which was published and is a distinct contribution to scientific medicine. The marked business ability and executive skill of Dr. Pearce contributed much to the financial success of the laboratory during his directorship.

As evidence of their high appreciation of his sterling worth, this minute is hereby inscribed by the Trustees of the Bender Hygienic Laboratory.

## Original Communications

# THE APPEARANCE OF GLYCURONIC ACID IN CERTAIN CONDITIONS OF DIMINISHED OXIDATION.*

By C. W. LOUIS HACKER, M. D.

*Instructor in Surgical Pathology, Albany Medical College.*

Considerable scientific interest has recently been aroused with reference to the origin and importance of glycuronic acid or its conjugate salts in carbohydrate metabolism, and especially in diabetes mellitus. Paul Mayer, in a series of papers, advanced the view that since glycuronic acid represents the first step in the progressive oxidation of dextrose into $CO_2$ and $H_2O$, this compound would necessarily appear as an incompletely oxidized product of dextrose combustion when, as in the incipient stages of diabetes, the body was beginning to lose its power to oxidize the carbohydrates. In substantiation of this Mayer[1] presented the results of the study of some cases of so-called incipient diabetes and of dyspnea in which he detected the elimination of glycuronates in quantities far in excess of the normal. So far as I am aware, no further notice of this point has been taken clinically, although, theoretically considered, the presence of this compound in the urine would be an invaluable aid in indicating early stages of diabetes.

This short communication deals with the search for glycuronates in the urine of patients exhibiting glycosuria of diabetic or other origin and of those who had undergone operations in which ether or chloroform had been employed. It is well known that under conditions of anesthesia the organism finds itself in a state of diminished oxidation and also that at such times, more especially after the use of chloroform, the

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* From the Department of Physiological Chemistry, Bender Laboratory. This investigation was pursued under a grant made by the Committee on Scientific Research of the American Medical Association. The earlier part of the work was done in collaboration with Dr. H. E. Robertson, formerly an assistant in the Bender Laboratory, who made a preliminary report at the Boston meeting (1906) of the American Medical Association. Published also in *Jour. Am. Med. Assoc.*, 1908, L, 252.

[1] Mayer (Paul); Unvollkommene Zucker oxydation im Organismus, *Deutsche Med. Wochschr.*, 1901, No. 16, 243; ibid., 1901, No. 17, 243; ibid. 1901, No. 17, p. 262.

urine voided after operation not infrequently shows a positive (?) reaction to Fehling's test. With these points in mind, it seemed advisable to conduct a second series of tests on urine eliminated under these various conditions and to attempt to decide to what could be attributed the reducing power noticed.

*Methods.*—In the first series of tests the glycosuric urines were examined quantitatively as follows: By means of Fehling's and Gerrard's titration methods, by Lohnstein's newest model of saccharometer and by polarization before and after fermentation.

In the second series of determinations qualitative examination was made before and after yeast fermentation, using Fehling's, Nylander's, phenylhydrazin, orcin and polarization tests. In this way it was expected that the appearance of any substance other than dextrose could be detected. In connection with the postoperative urines a portion voided within twenty-four hours preceding the operation was examined as a control in the same manner as the postoperative sample. The anesthetics were given in the usual way, with the exception that when chloroform was employed oxygen was administered in a more or less uniform ratio to the anesthetic, this ratio depending on the character of the operation. On the average the administration amounted to fifteen minims of chloroform and three to four liters of oxygen per minute.

Before the results are discussed it becomes essential to call attention to some points as regards the manner in which the various tests were performed. No qualitative copper test for dextrose in the urine is so widely employed as Fehling's, while, at the same time, none is so carelessly performed. As a result, ambiguous findings are constantly obtained and errors in diagnosis frequently occur. The main purpose in view, when the test is applied to the urine, is to detect the presence of dextrose as against other reducing bodies, i. e., uric acid, creatinin, pentoses, lactose, etc. Since grape sugar is capable of reducing copper much more readily than any of the other compounds which might simulate it, the most suitable conditions for the test are as follows: First, the copper should exists in its most active or ionized condition; second, the quantity of the other reducing substances in the urine must become reduced to such a minimum that they are powerless to

transform the copper while the amounts of dextrose still present remain active; third, the mixture should never be boiled after the addition of the urine. The first two conditions are met when the Fehling's solution is diluted and the urine added in much smaller quantities than is usually suggested in the various text-books on urinary analysis. The third is easily accomplished, although sufficient importance is not usually attached to it.

The disadvantages of using large amounts of urine (an equal or even one-half volume of the Fehling solution) are two-fold. In the first place, the strongly alkaline copper solution, especially in urines of high specific gravity, throws down a more or less voluminous precipitate of cupric phosphate which takes out the blue color of the solution and changes it to a dirty dark green. In the second place, the alkaline solution, acting on the ammonium salts of the urine, liberates sufficient ammonia to hold in solution small amounts of the red sub-oxid, obviously interfering with the detection of traces of dextrose. Reductions obtained under such circumstances are never typical. Very frequently under these conditions, and particularly if the mixture has been boiled even for only a few seconds after the addition of the urine, the greenish solution slowly takes on a dark, yellowish brown color, then becomes more turbid, and eventually, on standing, there separates out a finely divided, opalescent, yellowish green, cloud-like precipitate, which only settles out completely after the tube has been allowed to stand over night. In certain cases this reaction does not begin until a few minutes have elapsed after the addition of the urine. Such a reaction may be termed a pseudo-reaction. We recently had occasion to observe such changes occurring in concentrated urines of dogs even after the addition of only eight to ten drops of urine.[2] It is our conviction that this reaction is not due to the presence of an excessively large quantity of any weak reducing compound, such as may occur in the urine, but rather to the presence of one or more various conditions, a few of which are outlined above. The partial reduction of the copper occurs from causes other than the presence of dextrose, since, in the great majority of such cases, when the following details are observed, this obscure reaction never takes place.

The method of testing urines qualitatively for dextrose, as I employ and recommend it, as reducing to the lowest minimum the possibility of the above errors in results, and as efficient in easily detecting dextrose in amounts as low as 5/100 per cent., as well as in eliminating the reducing action of other compounds, is as follows: The sample is first tested

[2] Pearce, R. M., and Jackson, H. C., The Production of Cytotoxic Sera by the Injection of Nucleoproteids, *Jour. of Infect. Dis.*, 1906, III, 742

carefully for coagulable proteids; if these are found to be present they are removed by heat and acetic acid. About four to five cubic centimeters freshly prepared, three times diluted Fehling's solution is brought just to the boiling point and immediately two drops of the proteid-free urine are added and the tube shaken thoroughly. If the urine contains over two per cent. of sugar a yellowish-red precipitate immediately appears, changing gradually to a brownish red or bright red and which settles out slowly, leaving a greenish-blue supernatant fluid. Under these conditions it is better to roughly dilute the urine with two to four volumes of water, according to the strength of the reaction, and to perform the test again.

With strengths of dextrose of from one-half to two per cent., two drops of urine tested as above will cause a characteristic precipitation of red sub-oxid of copper about which there can be no doubt. With the smaller percentages the change may come slowly, but even then heat need not be applied after the urine is added. The blue color of the unchanged Fehling's solution takes on a greenish hue and a turbidity appears which makes the mixture look somewhat smoky. This is caused by a very finely divided yellowish or red precipitate appearing in the blue solution. Little change may be seen by transmitted light, but by reflected light a brownish-red tint is evident, which finally develops into a decided light red precipitate, gradually settling out and leaving a clear blue supernatant fluid. Such a change is, of course, the typical Fehling's reaction, and when the test is performed with such diluted urine as above indicated the reaction can only be ascribed to dextrose. The pentoses, lactose and even maltose, by this method, do not give this characteristic reduction. Urines showing this reaction always give a reaction with Nylander's solution.

If no change occurs in the Fehling's solution after the addition of two drops, as above, the mixture may again be warmed just to the boiling point, and from two to four more drops added and the mixture observed. This should be repeated until in all twenty drops have been added. If nothing occurs at this point the urine does not contain dextrose to the extent of five-tenths per cent. As a routine, one then adds about one-half as much Fehling's as there is urine, boiling for ten seconds in order to obtain, if possible, the psuedo-reaction

described above. This occurred in five per cent. of the normal urines tested by us. The time at which it appears on standing, and the depth of the turbidity and yellowish-green opalescence varies in a manner the cause or reason for which we are as yet unable to explain absolutely.

Considerable success has also been obtained in the use of Gerrard's[3] solution as a possible substitute for Fehling's quantitative procedure; while, perhaps, a little more cumbersome in its preparation than Fehling's solution, the sharpness of the end point in the titration is so greatly increased that it can be employed in some urines where Fehling's solution is impossible. Since the solution has found so little recognition in the American text-books, I detail its preparation and use.

Dilute 100 cubic centimeters of Fehling's solution with about 300 cubic centimeters of water; boil this mixture, at the same time adding cautiously an approximately five per cent. solution of potassium cyanid until the blue color has just disappeared. Then dilute the mixture to 500 cubic centimeters with water and keep in a stoppered bottle in the dark. For the titration take fifty cubic centimeters of this solution and add ten cubic centimeters of Fehling's solution. Boil the solution in a porcelain dish and run in from a burette the urine diluted so that the dextrose strength is approximately one-half to one per cent. The complete reduction of the urine is evidenced by the complete decolorization of the blue mixture. The end point is the same as in Pavy's procedure, without the disadvantageous presence of ammonia. As the double copper cyanid undergoes no reduction, the calculation takes place in the same manner as in Fehling's method, in which ten cubic centimeters are also employed. This method has been controlled with Fehling's procedure and the two give identical results. Gerrard's method is, however, the easiest to perform.

Newmann's[4] orcin test, serving to distinguish the pentoses, glycuronates and dextrose, has been extensively employed and with considerable success. Three cubic centimeters of the urine are treated with ten drops of a five per cent. alcoholic

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[3] Gerrard, (A. W.): Cyankupferreagens z. Bestimmung d. Glucose, *Jour. de Pharm. et de Chem.*, 1896, 3, 250; *Chem. Centrbl.*, 1896, 2, 135.

[4] Newmann, (A)., Neue Farbenreaktion der Zucker, *Berl. klin. Wochschr.*, 1904, No. 41, 1073.

orcin solution and ten cubic centimeters of glacial acetic acid. The mixture is then brought to the boiling point and, after cooling, concentrated sulphuric acid is added, drop by drop, with shaking, until about twenty drops have been added. In the presence of pentoses the color becomes olive green, glycuronates turn the color violet and dextrose gives a carmine.

The other tests mentioned above were performed in the usual manner.

## RESULTS.

In the first series of examinations 384 samples of supposedly normal urine of patients in the hospitals of Albany were examined in the hope of finding the pseudo-reaction mentioned above and of connecting it with the presence of glycuronic acid or glycuronates. In no case could there be determined the presence of these latter compounds in amounts more than the normal or sufficient to render it of value for diagnostic purposes.

Fourteen various samples of glycosuric urines were quantitatively examined, with the following results: Gerrard's and Fehling's quantitative methods agreed to within one-tenth per cent. The results by the saccharometer were uniformly lower and usually by one-tenth to seven-tenths per cent. This difference agreed, however, with surprising accuracy with that found in the polarization determination before and after fermentation. The figures obtained by subtracting the results of polarization before and after fermentation correspond to saccharometer readings to within one-tenth per cent.

These facts indicate that both quantitative copper tests include substances which are not dextrose and which turn the plane of polarized light to the left to the extent of from one-tenth to seven-tenths per cent. (calculated as dextrose). The saccharometer readings do not include these compounds, hence they are not fermentable. As a conclusion from these examinations we may say that in these urines glycuronic acid or its salts was not present in excessive amounts.

In the second series of examinations attention was turned to the postoperative specimens in the hope that in the condition of diminished oxidation following anesthesia glycuronates

might be detected in abnormal amounts. All the samples were voided within twelve hours after operation. In all 273 specimens were examined, of which 261 were voided after ether anesthesia, eleven following chloroform and one after a mixture of the two. Examination of the urines previous to the operations showed no reducing compounds to be present. Subsequent to the operations eleven samples of urine, voided after ether, gave positive reductions with Fehling's test, and on further investigation the reducing substance was shown to be dextrose in amounts from two-tenths to one and three-tenths per cent. The length and character of the operation apparently has no effect on the amount of dextrose eliminated. The patients were persons from twenty to thirty-five years of age. None of the chloroform samples or the chloroform-ether sample resulted positively. This is probably to be explained by the use of oxygen during the operation, thereby preventing diminished oxidation in the tissues.

## CONCLUSIONS.

1. Dextrose appeared in four per cent. of 261 samples of urine collected after operations in which ether was employed.

2. Neither glycuronic acid nor its conjugate salts are eliminated in the urine under conditions of diminished oxidation, such as occur during diabetes mellitus and ether or chloroform anesthesia, when the latter is combined with oxygen.

3. The pseudo-reduction obtained in about five per cent. of normal urines is to be ascribed to faulty methods of performing the test. It is not due to an increase in amount of uric acid or creatinin.

# A CLINICAL STUDY OF HYPERNEPHROMA, WITH PATHOLOGICAL REPORTS.*

By GEORGE E. BEILBY, M. D.

*Assistant Attending Surgeon, Albany Hospital.*

Since the recognition by Grawitz (1), in 1883, of the adrenal origin of a certain class of tumors arising in the kidney, there has appeared an abundance of literature bearing upon the subject. Grawitz's views were, at first, vigorously opposed by Sudeck (2), Driessen (3), Hansemann (4), Hildebrand (5), and other writers of note, who maintained that these tumors were of endothelial origin and denied the possibility of their relation to the adrenal body or aberrant adrenal tissue. Later studies, however, entirely confirmed the views of Grawitz; so that, at present, we have a well-recognized type of tumor arising from adrenal tissue, which may spring from a normally placed adrenal body, or from aberrant adrenal tissue. The term "hypernephroma," as a designation of this class of tumors, was first employed by Birch-Hirschfeld (6), in 1896, who recognized "typical and atypical, or benign and malignant hypernephromas, and, according to their origin, cortical and medullary forms." This term has come to include tumors of this character occurring not only in the kidney, but arising from adrenal rests outside of the kidney tissue; so that, at present, while it may be said that the histogenesis of these growths is thoroughly established and their pathological anatomy fairly well determined, they are among the most difficult of recognition and their clinical course and symptoms are not well defined.

The importance of early recognizing these tumors is apparent. As a rule, in the early stages they are of a benign nature, and their growth slow; and it may be months, or even years, before they metastasize, or present other signs of malignancy.

It is, therefore, mainly with the hope of adding something to the meager clinical data which we possess in regard to this condition, rather than with the idea of adding to our pathological knowledge, that this series of cases is presented.

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* Published also in *Surgery, Gynecology and Obstetrics*, 1908, (Sept.), li, 279.

## CLASSIFICATION OF CASES.

Under the general term of hypernephroma are included all tumors arising from adrenal tissue, whether this be at the normal site of the adrenal gland, from adrenal "rests" within the kidney substance, or at remote localities throughout the body. Further classification upon a purely histological basis has been attempted by some pathologists. Thus, Ohlmacher (7) designates a cortical and a medullary hypernephroma, depending upon whether the new growth reproduces the cortex or the medulla of the adrenal. This author reports a case of "malignant medullary hypernephroma." I have been unable to find other cases of this character in the literature, and the cases reported in this series have the histological appearance of the cortical rather than the medullary portion of the adrenal, with one possible exception. It is probable that the medullary form of growth is extremely rare, but future observations may enable us to develop a classification upon a histologic basis.

It seems that we might properly designate, at least clinically, a benign and a malignant form, for it is well known that many of these new growths may exist for years without presenting evidences of malignancy, while others rapidly invade the surrounding tissues and metastasize early; the latter group, however, may represent but a second stage of the former.

*Material.* The material forming the basis of this report comprises eleven tumors removed surgically, and examined at the Bender Laboratory during the past twelve years, and four autopsy specimens, which have accumulated during a like period of time. In two of the four post-mortem cases the hypernephroma, which was small, occupied the normal site of the adrenal body. Their presence was not suspected during life, the patients having died of some other disease. In the other two autopsy cases the hypernephroma arose within the kidney, in one of which were revealed two definite types of growth—sarcoma and hypernephroma, with metastases of the former growth to the liver. An attempt has been made to obtain, as far as possible, complete clinical histories of the surgical cases and the ultimate results in each instance.

These tumors may be divided as follows:

1. Hypernephroma (or adenoma) of the adrenal body (non-

malignant), two cases; in one instance the growth was bilateral.

2. Hypernephroma of the kidney (hypernephroma renis), nine cases.

The two cases of adrenal hypernephroma (adenomata) were discovered at autopsy. In one case (Bender Laboratory Records, autopsy No. 0-848), that of a woman aged sixty, death was due to chronic diffuse nephritis and thrombosis of the superior longitudinal sinus. The right adrenal measured 4 x 4.5 x 1.5 cm., and within its medullary portion was an oval yellowish mass, measuring 1 x 2 x 2 cm., surrounded by well-defined adrenal cortex. The mass was apparently a small adrenal tumor. Its cut surface was greyish-yellow in color. Microscopical examination showed the tumor to be composed of adrenal tissue.

The other case was one of dementia paralytica (Bender Laboratory Records, autopsy No. 0-497). Male, age not stated.

*Anatomical diagnosis.* Arteriosclerosis of aorta, iliac, and coronary arteries. Brown atrophy of heart, with slight interstitial myocarditis (papillary muscles). Senile emphysema of lungs with healed tuberculous foci and acute bronchopneumonia. Slight chronic passive congestion of liver. Bilateral hypernephromata (adenomata) of adrenals. Here both adrenals showed the presence of new growths, the one in the left small, but in the right the growth forms a distinct nodule eight millimeters in diameter, which is composed of yellow, cortical substance.

In neither of these cases do the records show that the adrenal growth presented any symptoms during life which could be attributed to their presence. They are reported in this connection only to complete our series.

*Hypernephroma renis.* Nine cases. Surgical seven, autopsy two. During twelve years, in which time 1,200 autopsies have been performed at the Bender Laboratory, we have encountered but two instances of hypernephroma having its origin within the kidney. While I have been unable to obtain any clinical data of these cases, the pathological reports seem of sufficient interest to warrant recording.

Case 1. Autopsy by Dr. Blumer (Autopsy Records, autopsy No. 11). Only a partial autopsy was made about thirty-six hours after death. Aged male.

*Adrenals.* Normal.

*Right kidney.* Capsule strips off with some difficulty, tearing away small pieces of kidney substance. The surface shows well-marked fetal lobulations. It is finely granular and somewhat congested. At one point, a cyst the size of a walnut, and containing a clear fluid, projects from it. On section, the cortex is considerably diminished. Cortex markings indistinct. Glomeruli visible and pale. Medulla congested, but otherwise normal. Pelvis normal.

*Left kidney.* The position of the left kidney is occupied by a mass the size of two fists. It has, in general, a kidney shape. Its surface is coarsely lobulated, and is adherent to the surrounding structure by firm adhesions. Its consistence is moderately firm. On section, it presents a mottled appearance. Its main bulk is made up of a greyish-white, translucent, homogeneous structure. Here and there, are areas of this structure which have taken on a greenish color, presumably the result of degeneration. This appearance varies from greenish to a dry, chrome yellow, the tissue in the latter event resembling very strikingly the appearance of the cortical adrenal substance. The adrenal gland on the same side is attached to the tumor mass, but apparently not invaded by tumor substance. At one point is an area, some three centimeters in each direction, lined by smooth, mucous membrane. This lies in the part of the tumor which corresponds to the hilum of the kidney, and is presumably the remains of the pelvis. Considerable portion of medulla of kidney remains unchanged, growth springing from cortex.

*Aorta* shows extensive atheromatous changes, with marked calcification.

*Liver.* The organ has a peculiar shape. Right lobe is much elongated in downward direction. Left lobe is very small. Surface is free from adhesions, a brownish-red color. Scattered over the surface are a number of yellowish, slightly elevated nodules, varying in size from a pea to a marble. On section, the organ is somewhat cloudy. Nodules seen on the surface are found to extend into the substance of the organ. The depth of their extension generally corresponds to their surface diameter. Scattered through the substance of the organ in its depths are a number of similar nodules. On section, they have a homogeneous, whitish-yellow, translucent appearance. The walls of the gall-bladder are thickened. It contains small amount of thick, mucus-like material and three or four dark, facetted gall-stones the size of marbles.

*Anatomical diagnosis.* Primary sarcoma of left kidney. Metastases to liver and retroperitoneal glands. Chronic diffuse nephritis with cyst formation. Cholelithiasis. Hypertrophy of the prostate. Contracted bladder. Atheroma of aorta.

## The Tumor.

The tumor presents, in different parts of its substance, two entirely different structures. In places one type predominates over a large area; in places the other type predominates over a large area; while, in still

other places, the two adjoin each other, the one apparently invading the other, as will be described below. The one type of tumor presents the following appearances: Under the low power, it is apparently made up of a series of fairly regular spaces, having thin walls, and containing a few scattered nuclei. Under the high power, it is seen that the walls of these spaces are made up of fine bands of connective tissue. The spaces are lined, in some places, by flat cells similar to those lining those of normal blood or lymph vessels. The scattered nuclei, which were seen with the lower power in the spaces, can now be made out to belong to large, exceedingly pale cells, which fill the spaces, and which are apparently proliferated endothelial cells. At no place in the section, which is an alcohol-hardened one, can red blood corpuscles be seen, notwithstanding the fact that their shadows can easily be made out in the adjacent vessels. At one or two places in the tumor spaces are objects which suggest shadows, and, in an occasional space, the polynuclear leucocytes may be seen. There are distinct blood-vessels running through the tumor, but no connection can be made out between them and the spaces. Although the tumor presents all the appearances of an angiosarcoma, it seems probable that it sprung from the lymph and not the blood vessels.

The other type of tumor, present in the growth, is made up of cells without any definite arrangement, between which run irregular bands of connective tissue. The cells in this growth vary considerably in size and appearance. Taken as a whole, they are large cells. Their shape varies, some being round, some oval, and many of them quite irregular. The amount of protoplasm varies, some showing but a narrow rim, while in others the amount is great. The nuclei have a peculiar refractive look, and the chromatic network is very sharply marked. Scattered throughout the tumor are quite a number of multi-nucleated cells, many of which are large enough to deserve the name giant cell, and some of which have distinct budding nuclei, such as are seen in certain cells of the bone marrow. Where the two types of tumors meet, one gets the impression that the angiosarcoma is being invaded by the other growth, and the invasion is apparently taking place by the progression of the latter along the connective tissue of the former.

*Liver.* Outside of the metastasis to be described later, the liver shows areas of localized dilatation of the blood-vessels (probably from pressure of tumor nodules), a swollen and granular condition of the liver cells, and occasional fat spaces. The tumor metastasis, which causes a certain amount of compression of the surrounding liver substance, resembles the second type of growth described. The cells, however, do not differ nearly so much in size as they did in the original growth, nor are there present any such number of the large multinuclear cells, or of the cells with budding nuclei. In fact, both of these latter are almost absent.

*Kidney,* for some reason, stains very poorly. Capsule absent. Occasional areas or new-formed connective tissue in center and few similar areas in kidney substance. Most of the glomeruli normal. Here and there, an atrophied one is seen. Kidney cells swollen and granular. Blood-

vessels show well-marked obliterative endarteritis. Occasional hyaline cast is seen in tubules.

Case 2. Autopsy by Dr. Pearce (Autopsy Records, No. 1147). Male, sixty years of age.

*Abdomen.* A small amount, about 300 cubic centimeters, of clear, straw-colored fluid is found in the pelvis. Appendix normal. Mesenteric lymph-nodes normal. In the left flank is found a large, lobulated mass, corresponding to the position of the kidney, and adherent to the adjacent structures.

*Right kidney.* Smaller than normal. Capsule peels readily, leaving a coarsely granular surface, with here and there a few small cysts. Cortex is greatly diminished, being less than one-half the normal amount, and is firm and greyish-red in color. Pyramids are injected. In the pelvis is an increased amount of fat. On the surface of the kidney, and projecting from it as a globular mass, is a tumor two centimeters in diameter, of soft consistence, uniformly yellowish in appearance, and distinctly encapsulated.

*Left kidney* is similar in appearance to right, but adherent to and involving its upper pole, is a bilobed mass, twice the size of the kidney itself, which is soft and fluctuant and suggests the presence of cysts. On section, however, these masses are found to consist of a new growth, which has become completely necrotic and which presents in part a uniform, rather firm, yellowish, necrotic tissue, and, in part, soft, red, grumous material mixed with old blood. The position of the tumor, which is distinctly encapsulated and separated from the kidney substance, although it impinges upon the kidney, presents here and there small portions of tissue which have not undergone necrosis and which indicate it to be of adrenal origin. Moreover, the adrenal on this side cannot be found.

*Anatomical diagnosis.* Arteriosclerosis. Chronic diffuse nephritis (interstitial type). Fatty transformation of the myocardium. Large necrotic hypernephroma involving left kidney. Small hypernephroma of right kidney. Subacute esophagitis. Chronic congestion of liver. Emphysema of lungs. Moderate hydroperitoneum and hydrothorax. Malformation of sternum (old fracture?).

*Microscopic diagnosis.* Chronic interstitial nephritis with hyaline degeneration. Subacute esophagitis. Papillary adenoma of kidney. Necrotic hypernephroma.

## Surgical Cases.

Case 1. Male, aged fifty-eight, was admitted to my service in the Albany Hospital, October 10, 1907. His family history was unimportant. He states that he has always been in good health till the onset of the present trouble, which began seven years ago. At this time, while picking fruit in a tree in a strained position, he felt something "give way" in his right side. The sensation was so noticeable that it was mentioned to his wife.

Two days later, blood appeared in the urine, and persisted for two or three days, but was not accompanied by pain. The patient experienced no

trouble for a year and a half, during which time he felt perfectly well, when there appeared a second attack of hematuria of greater severity than the first and its onset was accompanied with colicky pain and chills, the pain radiating from the back to the perineal region and penis. The flow of blood was so profuse that clots obstructed the urethra and catheterization was necessary. This attack continued for about a week, when there was complete cessation. From this time until about six months ago (four and one-half years), the attacks of hematuria recurred at intervals of four or six months, each time lasting from two days to a week. During the last six months they have occurred more frequently. From frequent catheterizations the patient has developed a severe cystitis. During the last year he has lost about ten pounds in weight.

*Physical examination.* The patient is a strong, muscular man, well nourished, with a slightly sallow complexion. The superficial arteries show no signs of sclerosis. Pulse eighty, strong and regular. Examination of the heart and lungs gives no evidence of disease of these organs. There is a decided fullness in the right flank below the costal margin where, on palpitation, a tumor, measuring approximately ten by eighteen centimeters, can be made out. It occupies the lumbar region and extends forward to the nipple line. It moves slightly with respiration. It presents a smooth, anterior surface, and suggests in its shape and position a tumor involving the kidney. A skiagraph was made and at about the center of the tumor mass a small shadow, about the size of a pea, was seen, which was interpreted as revealing a small kidney stone. In view of the history and X-ray findings, a clinical diagnosis of cystic kidney was made.

*Urine examination.* Sp. gr. 1018, acid, no sugar, trace of albumen, pus and epithelium abundant.

*Operation,* October 12. Chloroform and oxygen. Lumbar incision. Kidney was found adherent to the surrounding fat, from which it was separated with considerable difficulty. On account of its size, the mass could not be delivered until the incision was extended well forward along the ilium. The pedicle of the kidney was clamped and the organ removed. On account of the extensive involvement of the vessels by the new growth, their ligation was impossible. Clamps were left in situ. Several large gauze wicks were carried down to the stump of the renal pedicle, and the external wound partially closed with interrupted silkworm gut sutures. Salt solution 1,000 cubic centimeters were given subcutaneously. There was considerable operative shock, but the patient responded well to treatment, and his condition after twelve hours was good. During the first twenty-four hours following the operation, only three and one-half ounces of urine were obtained per catheter. By the employment of diuretics and the introduction of large amounts of saline solution, the daily output of urine was gradually increased, so that on the sixth day after the operation thirty-eight ounces were obtained, which had a fair specific gravity, but contained a large amount of albumen. The patient early developed symptoms of uremia and died on the seventh day after operation.

*Pathological report* (Bender Laboratory Records, Surg. Path., No. 07-1348. See Fig. 1).

*Gross description.* Specimen consists of a kidney, measuring 14 x 8.5 x 7.5 centimeters. Outer surface is very irregular, in places of a nodular character. It is throughout the greater part mottled greyish-red in color, nodules being bright yellow. At hilum these nodules are more marked, and a mass measuring four centimeters in diameter, apparently having its origin in the pelvis, is present beneath the capsule. These nodules vary in size, from pin point to the above mentioned. Some are solitary, while others are conglomerate. On section, the pelvis is considerably dilated and distorted and, in part, the calices are obliterated. Cut surface of the kidney substance shows it to be pale greyish-brown in color, and anatomical markings are obliterated. Distributed throughout are numerous, slightly elevated, yellow areas of various shapes and sizes. These nodules are somewhat firm, but one has broken down and presents slight hemorrhage. About some of these nodules the tissue is dark brown, due to old hemorrhage.

*Anatomical diagnosis.* Multiple hypernephromata of kidney.

*Microscopic description.* Sections of kidney. The entire cortex and medullary portions are extensively replaced by connective tissue, the greater portion being composed of young cells. Many tubules are compressed and obliterated, some containing hyaline casts and denuded of epithelium. Others are dilated. Many glomeruli are partly or entirely replaced by fibrous connective tissue and the capsules greatly thickened. In the section are areas of cuboidal cells which stain poorly and contain fat globules. These nuclei are found and show no definite arrangement. About them the connective tissue is fibrous and contains considerable free blood and pigment.

*Microscopic diagnosis.* Hypernephromata of kidney.

Autopsy by Dr. Hacker (Bender Laboratory Records, autopsy No. 1188).

*Anatomical diagnosis.* Absence of right kidney (due to operation). Incised wound of right side, with necrosis (due to operation). Hypernephroma of perinephritic fat (right side), with invasion of inferior vena cava. Chronic interstitial nephritis. Cholelithiasis. Hydroperitoneum. Hydrothorax. Hypostatic congestion of left lung. Emphysema of lung. Anthracosis of lung.

*Kidneys.* The left kidney is enlarged and measures 11 x 6.3 x 5 centimeters. The capsule, in places, is adherent. The surface is pale and presents numerous points of retraction. Beneath it are occasional cysts, the largest one centimeter in diameter. The cut surface is pale and opaque. The cortex is thickened and markings are indistinct. Numerous cysts are present, and at the lower pole in one pyramid is a circumscribed, soft, brownish-yellow nodule one and two-tenths centimeter. The right kidney is absent. In the right renal region the tissue is infiltrated by blood and necrotic material. Behind the right renal vein is a soft, friable mass, measuring approximately 5 x 3 x 2 centimeters. The portion bordering on the wound is soft, pinkish-brown, but anteriorly it is soft and bright yellow. The latter penetrates the posterior wall

Fig. I. Photograph of Multiple Hypernephromata of Kidney. ¾ actual size. Surgical Case I.

Fig. II. Photograph Showing Hypernephroma Invading Vena Cava. ¾ actual size. Case I.

of the inferior vena cava and forms a pedunculated mass, which fills the lumen and extends into both renal veins (See Fig. 2). This mass is soft, bright yellow, and freely movable about the pedicle. It measures approximately 4 x 3 x 1.8 centimeters. About four centimeters from the inferior vena cava, the right renal vein presents a small, bluish-brown, eroded area.

*Microscopic description. Right kidney.* Throughout there is an irregular increase of connective tissue and beneath the capsule are areas composed chiefly of small, round cells. In the cortex, many of the tubules are lined by swollen and granular cells, which entirely fill their lumina. Toward the pelvis, many are contracted and filled with hyaline material. Others are dilated. The lumina of many tubules are filled with desquamated epithelium. Many cells contain fat globules. Many glomeruli show proliferation of young connective tissue, some of which are entirely transformed into fibrous tissue with hyaline degeneration. The veins are engorged and dilated. The arteries show thickening, chiefly the intima, while many capillaries show obliteration with hyaline transformation. At one point is an area composed of processes of fibrous tissue covered by cuboidal cells, many of which have a brown granular material. In places these processes have undergone necrosis. Within the necrotic material are numerous blood corpuscles, pigment, and cholesterin spaces. About this area is a dense, fibrous capsule in which are a few spaces lined by a single layer of cuboidal cells. The nuclei of these cells are round and stain deeply. In the region of this area are several cysts containing a mucoid substance. These cysts are lined by a single layer of low cuboidal cells. Throughout many sections are occasional small areas filled with densely packed, irregularly arranged cells, which resemble in structure those in tne area above described. The arteries show marked thickening of the intima and the capillaries show increase of connective tissue, with hyaline transformation and obliteration.

*Left adrenal.* Irregular areas are composed of cells showing marked infiltration of glycogen. The capillaries show marked thickening with hyaline transformation. Many are obliterated.

*Right adrenal.* Similar to left.

Retroperitoneal mass at base of wound. The greater part is composed of large cells having a tubular arrangement and in which are globules of glycogen. The greater part of the tissue is necrotic and the capillaries are distended with colonies of bacteria. In part, the necrotic material is markedly infiltrated by polynuclear leucocytes. The remaining tissue is edematous and contains many leucocytes.

*Microscopic diagnosis.* Hypernephroma of lumbar region, with necrosis and suppuration. Hypernephromata of right kidney. Chronic interstitial nephritis. Chronic myocarditis. Chronic passive congestion of lung, liver, and spleen. Arteriosclerosis. Chronic cystitis. Slight chronic pancreatitis. Acute bronchopneumonia. Anthracosis, emphysema, and atelectasis of lung. Encapsulated papillary adenoma of right kidney.

Case 2. Service of Dr. MacDonald. Mr. T. S., aged forty-six years. Duration of disease six months, following a fall in which he was struck in the region of the right kidney. Symptoms of onset, pain, originating

in right lumbar region and referred downward to penis, hematuria accompanying pain. Recurrent attacks for six months.

*Clinical diagnosis.* Stone in kidney.

*Operation.* Removal of right kidney.

In February, 1908 (five and one-half years after operation), patient was in good health.

*Pathological report* (Bender Laboratory Records, Surg. Path. No. 97-14), September 4, 1902.

*Gross description.* Specimen consists of a kidney measuring 5 x 2 x 1.5 inches. The fatty and fibrous capsules have both been removed, leaving a smooth, mottled surface. The prevailing color of the surface is yellowish-brown, the mottling being due to numerous pin-head areas of hemorrhage. The upper pole of the kidney is enlarged, and there are present on the surface of the enlarged portion a number of yellowish tumor nodules, covering from one-sixteenth to three-eighths of an inch in diameter. These nodules are rounded, soft in consistence, and smooth, and are of yellowish color. On section of the kidney, the main portion of the organ is relatively normal. The cortex is slightly swollen and quite pale. Glomeruli congested. The pelvis shows a number of discrete and confluent hemorrhages. The tumor nodule measures an inch and five-eighths in diameter. It is roughly globular and occupies one pole of the kidney and projects into the pelvis. One point of the tumor is soft, and in places distinctly hemorrhagic, and is made up of a yellowish cellular growth, which has the appearance of adrenal tissue.

*Anatomical diagnosis.* Hypernephroma of the kidney.

Case 3. Service of Dr. Vander Veer. Mr. G. W., aged thirty-five. Complains of tumor in the left abdominal region. Onset five years ago, with pain in the region of the tumor. Attack lasted three days. Ten days ago, first noticed a bunch in left side of abdomen, which has increased some in size since then. Patient has lost in weight and feels perfectly well. Urinary examination showed granular, hyaline, and epithelial casts, some mucus, some epithelia, clear amber, sp. gr. 1020, no sugar, trace of albumen.

*Clinical diagnosis.* Sarcoma of kidney.

*Operation,* May, 1905. Removal of left kidney. In November, 1907 (two and one-half years since operation), patient was well. Had gained fifteen pounds in weight. Urine was normal. No evidence of metastatic or recurrent growths.

*Pathological report* (Bender Laboratory Records, Surg. Path., No. 05-537).

*Gross description.* Specimen consists of a kidney, from the cortex of which projects a definitely encapsulated cystic tumor, measuring from twelve to sixteen centimeters in diameter, and having a base measuring 10 x 3 centimeters. The center of this base corresponds to a point situated on the surface of the kidney, opposite the hilus and at a point corresponding to the junction of the upper and middle thirds. On section, the tumor is found to have a firm, fibrous capsule, averaging from three to five millimeters in thickness, and a softened center, consisting of a grumous, blood-stained, necrotic-looking material, with coarse

tags of fibrous tissue extending in from the wall of the cyst. The cyst extends into the kidney as far as the pelvis and the kidney cortex is reflected over the surface of the tumor, for a distance of four to five centimeters, at the base. The remainder of the kidney shows nothing noteworthy. The general picture is that of a tumor, originally composed of large, cellular areas and coarse interstitial fibrous bands, which has undergone extensive necrosis.

*Anatomical diagnosis.* Hypernephroma with extensive necrosis and softening.

*Microscopic description.* Sections show capsule composed of dense fibrous tissue with areas of calcification and true bone formation. The contents of the cyst are, for the most part, almost completely necrotic, but immediately adjacent to the capsule, and partly infiltrating it, can be be seen irregular islands of large, polyhedral, vacuolated cells having the general characteristics of adrenal cells. These cells are arranged in irregular masses, and, in some areas, have an indefinite, glandular arrangement. In other sections, new-formed blood-vessels can be seen extending from the capsule into the necrotic, hemorrhagic cysts contents.

*Microscopic diagnosis.* Adrenal tumor with extensive central necrosis and softening and hemorrhage, together with calcification and bone formation in capsule.

Case 4. Service of Dr. Madill, of Ogdensburgh, N. Y. Mrs. K., aged thirty-three. Duration of disease about five months. Symptoms anemia, loss in weight, and pain of a dragging character in the region of the left kidney. No urinary symptoms (patient had suffered from neurasthenia for over a year, and the tumor of the kidney was discovered while making an examination).

*Clinical diagnosis.* Tumor of kidney.

*Operation.* Nephrectomy, left.

Recovered from operation rapidly and improved for about four months. Then again became anemic, lost weight, and died ten months after operation (definite cause of death not known. No evidence of recurrence or metastases).

*Pathological report* (Bender Laboratory Records, Surg. Path. No. 06-55).

*Gross description.* Specimen consists of a large, distorted kidney. Capsule strips fairly readily from one pole, which measures 7 x 6 x 3 centimeters. Opposite pole is enlarged by a circular tumor mass so that it measures 10 x 7 x 5 centimeters. Entire kidney is about thirteen centimeters in length. Mass is six centimeters in diameter. Kidney substance is normal in consistence, except over mass, where softened areas are felt. Considerable amount of fat is found in pelvis. Over tumor, color is a reddish to a yellowish-white. Remainder of kidney is pale and dark reddish-white in color. Cut surface shows the tumor mass to be well encapsulated, yellowish-white in color. Several areas of hemorrhage near periphery. The remainder of tumor surface contains scattered areas of increased consistence and waxy appearance. In the remainder of the kidney, cortex and pyramids are very pale. Pelvis contains a large amount of fat. Malpighian corpuscles are seen.

*Anatomical diagnosis.* Adrenal adenoma arising in kidney.

*Microscopic description.* Section of kidney and tumor mass shows tumor surrounded by a compact layer of kidney pulp, beneath which and in body of tumor are found areas of hemorrhage. Tumor is made up of a fine, reticular stroma, in which are large epithelioid cells with vesicular nuclei. Cells are arranged in cords and masses. Protoplasm does not stain well, is translucent and vacuolated, and contains a few granules. Many large areas of necrosis occur, accompanied by infiltration of leucocytes and lymphoid cells. Renal tissue proper shows cloudy swelling of tubular epithelium.

*Microscopic diagnosis.* Adrenal adenoma.

Case 5. Service of Dr. Van Loon. Mrs. D. Z., aged fifty-two. Family history negative. Patient has had attacks of "stomach trouble" for several years. One week ago, a definite attack of biliary colic. Upon examining the abdomen at this time, a tumor of the right kidney was found. Urinary examination negative.

*Clinical diagnosis.* Gall-stones, tumor of right kidney.

*Operation,* May 11, 1907. Cholecystotomy, removal of gall-stones, nephrectomy, right kidney and tumor. Good recovery. In February, 1908 (eight months after operation), patient was well.

*Pathological report* (Bender Laboratory Records, Surg. Path. No. 07-670).

*Gross description.* Specimen consists of a pyramidal-shaped mass, measuring approximately 18 x 12 x 8 centimeters through its broadest diameters. The mass is encapsulated and the broader half is greyish-yellow and soft, while the remaining portion is firmer and greyish-brown. On section, the cut surface of the soft portion is pale, brownish-yellow, and pulpy; from it there exudes a brownish-pink fluid. The remaining portion, on section, presents the cut surface of a kidney. The two portions gradually fade into each other.

*Anatomical diagnosis.* Hypernephroma of kidney.

*Microscopic description.* Sections show trabeculæ and gland-like spaces, composed of polygonal or cuboidal cells, arranged in an irregular manner. In parts necrosis is seen and extensive hemorrhage.

*Microscopic diagnosis.* Hypernephroma of kidney.

Case 6. Service of Dr. Macdonald. Mr. D. J., aged forty-nine. Clinical history not obtained. Patient died twenty-four hours after operation.

*Pathological report* (Bender Laboratory Records, Surg. Path. No. 04-860).

*Clinical diagnosis.* Sarcoma of left kidney.

*Gross description.* Specimen consists of a much enlarged and degenerated kidney which has been bisected. Each half measures about 16 x 12 x 3 centimeters. External surface of one-half is smooth and glistening. The other surface is uneven and denuded of covering in places. On section, find but little evidence of normal kidney tissue, and that is near periphery. Surface, as a whole, presents a necrotic, honey-combed appearance. Strands of white, fibrous tissue, fairly hard to feel, radiate in all directions. These areas are intermingled with yellowish patches, some of them being necrotic and filled with cheesy-like material. In still other

places, the surface presents a pearly-white appearance. Some evidence of hemorrhagic areas in cortex, there being a few blood clots.

*Anatomical diagnosis.* Hypernephroma of kidney.

*Microscopic description.* Large masses of cells with round, lightly staining nucleus and large amount of protoplasm, which is greatly vacuolated and resembles the structure of adrenal cells. Between these masses are large bands of more or less hyaline connective tissue. Some portions of tumor are entirely necrotic.

*Microscopic diagnosis.* Hypernephroma.

CASE 7. (From Ellis Hospital, Schenectady, N. Y.) I have been unable to obtain any clinical history of this case other than that which was appended to the specimen upon its receipt at the laboratory. It was said to be a left kidney which had been growing for seven years; patient suffered from intermittent hematuria.

*Pathological report* (Bender Laboratory Records, Surg. Path. No. 04-1054).

*Gross description.* Specimen consists of an oval tumor mass, measuring 24 x 17 x 14 centimeters. The surface is roughly lobulated and covered with coarse tags of fibrous tissue, the entire mass having a firm, fibrous capsule. On section, the mass is seen to consist of multiple globular, usually definitely encapsulated, tumor masses, ranging from one to four centimeters in diameter. These masses, are separated from one another by firm sheets of fibrous tissue which retract on section. The non-degenerated portions of the new growth present a light pink, distinctly granular, cut surface; others are softened and present a yellowish, fatty-like surface; while others are hemorrhagic, and a few are represented by cavities filled with a hemorrhagic fluid.

*Anatomical diagnosis.* Hypernephroma.

*Microscopic description.* Sections show stroma of connective tissue imbedded in which are large polyhedral cells, lying in irregular columns. These cells show marked vacuolation, with some pigmentation resembling adrenal cells.

*Microscopic diagnosis.* Adenoma of kidney with cells resembling adrenal cells (hypernephroma).

## SYMPTOMATOLOGY.

The four cases reported from our autopsy records did not present, as far as can be determined, any symptoms attributable to the hypernephroma. The clinical history of one of the surgical cases was not obtainable, leaving us only six cases on which to base our clinical data. The symptoms of importance, which were fairly constant, were three in number, *pain, hematuria* and *tumor.* Pain was present in four of the six cases, in three of which it was of the type described as renal colic, and was accompanied by hematuria. Without doubt, the pain in these cases is due to the passage of blood

clots from the pelvis of the kidney to the bladder. In the fourth case, the pain was confined principally to the region of the tumor, and radiated backward to the spinal column.

The most frequent form of pain, then, is that accompanying the hematuria, and it differs in no way from that caused by the passage of other foreign bodies along the ureters. It is usually not as severe in character as that produced by calculi. The hematuria, if slight in amount, may occur without pain. It is frequently the first symptom noticed. In all of our observations it was intermittent in character, lasting from a few hours to several days, and appearing at intervals from a few months to several years. In one case, the hemorrhage was usually very profuse, often filling the bladder with clotted blood and obstructing the urethra.

Apparently the size and location of the growth within the kidney substance had little bearing upon the occurrence of this symptom; for, in two instances where the pathological examination showed the tumor to be of large size and to involve the renal pelvis, there had been no hematuria. A tumor that is easily palpable, or that the patient discovers, is necessarily a late symptom and, if one on which we rely to make a diagnosis, often appears too late to offer our patient a good chance of recovery.

*Location.* In six of the ten cases of hypernephroma of the kidney, the tumor was found upon the left side.

General symptoms are usually absent in the early stages. With prolonged and severe bleeding, secondary anemia is marked, and the patient may lose considerable weight. In one case the condition was associated with neurasthenia.

Aside from the presence of blood, there were no significant urinary changes. One case had a severe cystitis, probably from catheterization, and in two there were evidences of a chronic nephritis, albumen, and urinary casts.

*Age.* The youngest patient was thirty-three, the oldest sixty years; average age forty-eight years. The average age of onset, as indicated by the appearance of symptoms, was forty-one years.

*Sex.* In one case, the sex was not stated. In six cases, it was found four times in the male and twice in the female.

*Duration.* It is obviously difficult to ascertain, even approximately, the length of time that many of these tumors

have been present. In two of our cases, while the growths had attained large size, they had presented no symptoms which attracted the attention of the patient, and they were discovered by the physician upon examination. It is only in those cases, in which hematuria and pain are manifest, that we can base any accurate knowledge of the length of time which the tumor has been present. I think it may be said that, almost without exception, this type of growth is slow in progress, especially in its early stages, and attains palpable size only after several years of existence. In two cases in this group hematuria had been present for seven years. Tumors presenting symptoms for shorter periods of time, gave no indications, histologically, of being of a less malignant type.

*Diagnosis.* Unfortunately these tumors of adrenal origin, whether arising within the kidney substance or at the normal site of the adrenal body, present no pathognomonic symptoms. For a diagnosis we are largely dependent upon three symptoms, *hematuria, pain* and *tumor,* which are alike suggestive of other and more common kidney lesions. As far as I am aware, those growths arising outside of the kidney never present symptoms, except tumors and, perhaps, metastases, both of which are necessarily late manifestations. It may be said that rarely is a correct diagnosis of hypernephroma made previous to operation. This is unfortunate, since it is clearly demonstrated that these growths, at least the majority, are of a benign character in their early stages, and that, when thoroughly removed at this time, they show no tendency to recur. It seems that, clinically, we may recognize two groups of *hypernephroma renis:* Cases associated with hematuria; and cases without. Obviously, the cases without hematuria present no early symptoms whatever suggestive of renal lesion, so that in this group, *tumor* and, rarely, pain are the first manifestations. This was true in three of our six cases in all of which the growth had attained considerable size. In one of these cases, death occurred within a few days after operation, and in another, after a few months. In this latter case, while it was not demonstrated that death was due to metastases, this seemed to the surgeon to be the probable explanation. In the other group of cases where hematuria is present we are given a clue to the condition, and by a process of exclusion we should be able, at least, to make a tentative diagnosis of

hypernephroma. An exploratory operation should then be done. Three of our cases had hematuria early in the disease and in each instance it was associated with "colicky" pain. In a study of the cases collected by other observers, we are led to believe that *hematuria* and *pain* are present more frequently than indicated by our series. Thus Keen and Pfahler (8) found hematuria in nineteen out of twenty-six cases. Cases, then, presenting the symptom of hematuria should always be approached with this possibility in mind, and we should exhaust every means at our command to confirm or exclude hypernephroma. A question in regard to these cases, which has never been thoroughly investigated, is that of increased arterial tension. It is logical to suppose that, with an increase of adrenal tissue, we may have an excess of adrenal secretion, which would result in a rise of blood-pressure. Certain writers have noted that this was true; but observations upon this point, sufficient to settle the question, have not yet been made. Every case of hypernephroma should be thoroughly investigated in this regard, and we may find that a study of the blood-pressure furnishes us a valuable aid in diagnosis.

*Prognosis.* I think it can be safely said that, in the majority of cases of hypernephroma, an early removal of the tumor will result in a complete cure. Three of our six cases operated upon are still living and in good health; in one instance five and one-half years have elapsed since operation. One case has been lost sight of.

*Metastases* of the hypernephromata are not uncommon, although it was not observed in any of the cases of our series. In Case 1, there was a direct extension of the growth through the renal vein into the vena cava. The usual mode of metastasis is through the blood-stream by way of the renal vein, and this takes place usually in the later stages where there is extensive local invasion. The metastases, therefore, are found most frequently in the bones, lungs, and liver. Scudder (9) has recently recorded four instances of bone metastases and refers to eleven other cases in the literature, making fifteen in all, the majority of which were fatal. Rarely, extension may occur through the lymphatics. Stober (10) reports a case of hypernephroma of the left adrenal with metastases to the mediastinal lymph glands. I have been unable to find other similar instances in the literature.

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# THE INFLUENCE OF THE REDUCTION OF KIDNEY SUBSTANCE UPON NITROGENOUS METABOLISM.[1]

BY RICHARD M. PEARCE, M. D.

This communication presents the results of one of several investigations having for their object the determination of the part played by chemical correlation, in a broad sense, in the productions of pathological conditions associated with diseases of the kidney.[2] In taking up such problems one of the first questions for consideration is that of the influence of the hypothetical internal secretion of the kidney upon general nitrogenous metabolism. I use the term hypothetical advisedly, for although this theory occupies a prominent place in the literature dealing with the question of uremia and is very suggestive, there is little experimental or other evidence to support it.

It was first brought to general notice by Brown-Sequard,[3] who as the result of his investigation of the internal secretion of the testicle came to very broad conclusions concerning internal secretions in general and stated that the kidney, as also other organs, have this function. He based his opinion as regards the kidney on clinical observation[4] and the study of dogs from which both kidneys had been removed as compared with those

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[1] Aided by a grant from the Rockefeller Institute for Medical Research. Published also in *Journal of Exper. Med.*, 1908, x, 632.

[2] Pearce, R. M., The Theory of Chemical Correlation as Applied to the Pathology of the Kidney, Annual Address before the Philadelphia Pathological Society, April 23, 1908.

[3] Brown-Sequard, Importance de la secretion interne des reins, *Arch. d. phys. norm. et path.*, 1893, v, 778.

[4] Fowler, E. P., Suppression of Urine, New York, 1881.

in which the ureters had been ligated. As the result of both procedures the retention of metabolites is the same, but in the nephrectomized animals, death, which comes on more rapidly, is supposed to be due to the absence of an internal secretion which, it is assumed, is still furnished by the ligated kidneys. If, as he claimed, in the nephrectomized animals the internal secretion is replaced by the injection of renal juice, or glycerine extracts of kidney or by normal serum the animals live as long or even longer than those which have had both ureters ligated. Such observations are urged in support of the theory of internal secretion by those who do not believe uremia to be due to the retention of the products of metabolism.

Similarly, metabolism experiments on man which tend to show that uremia may occur without evident nitrogen retention are viewed in the same way and are taken by those who support the theory of internal secretion to indicate that uremia is not due to lack of elimination of metabolites but to loss of the internal secretion.

From the experimental side the only method of attack has been by the study of the variation in elimination of nitrogenous substances after extirpation of amounts of kidney substance sufficient presumably to disturb the hypothetical internal secretion. Upon this phase of the subject the observations of Tuffier, of Bradford and of Bainbridge and Beddard are available. Tuffier[5] removed first one kidney, and after an interval, a portion of the other. He came to the conclusion, based on ten experiments, that one and five-tenths gram of kidney substance per kilo of body weight was sufficient to maintain life and adds that except for oscillations due to the immediate effects of the operation no changes in the elimination of urine or urea were noted.

Bradford[6] also working with dogs, found that after the removal of approximately three-fourths of the total kidney weight death occurred in from one to six weeks from asthenia with great wasting; coma and convulsions were not observed. Death is apparently dependent on the amount of kidney substance removed and not upon mutilation inflicted by the surgi-

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Tuffier, T., Étudés expérimentelles sur la chirurgie des reins, Paris, 1889 (quoted from Bradford).

[6] Bradford, J. R., The Results following Partial Nephrectomy and the Influence of the Kidney upon Metabolism, *Jour. of Physiol.*, 1899, xxiii, 415.

cal operation. Excision of a portion of one kidney or portions of both is followed by an increase in the volume of the urine, but unaccompanied by an increase in the total solids. After excision of three-fourths of the total kidney weight there occurs an increase in the amount of urea eliminated. This increase is absolute when appetite does not fail, and relative when little or no food is taken. Under the latter circumstances the amount of urea eliminated is as great as that excreted previously on a full diet. At the same time the blood and tissues, particularly the muscles, show a considerable increase in nitrogenous extractives. Bradford concludes that the disturbance of metabolism following the reduction of kidney substance is due, not to the retention of the products of normal destruction of tissue, but to an increased tissue catabolism especially of the muscles, producing large quantities of urea. He states that he has made no observations to determine whether this is due to the cessation of the action of a renal internal secretion. His results have, however, been so interpreted by later writers.

Bainbridge and Beddard[7] in a recent publication describe their observations on cats. They conclude that the removal of three-fourths of the kidney substance causes loss of appetite, wasting and death in a few days or weeks; that an increase of nitrogen in the urine is not constant and occurs only during the last few days of life when the animal has lost twenty-two per cent. or more of its body weight and therefore that the kidney has no direct influence on metabolism but that the increase of nitrogen is the result of inanition and similar to that which occurs in starving animals. They also found that there was not necessarily an increase in the volume of urine.

The difference of opinion between these investigators seemed sufficient to warrant a repetition of the experiments in order to determine the effect of the reduction of the kidney on nitrogenous metabolism. In carrying them out I have also investigated the total nitrogen eliminated in the feces in order to determine if possible whether or not the inanition could be explained by digestive disturbances due to faulty absorption

[7] Bainbridge, F. A., and Beddard, A. P., The Relation of the Kidneys to Metabolism, *Proc. Royal Soc.*, 1907, lxxix (B), 75.

or possibly to the effect of irritating nitrogenous substances eliminated through the intestines.

These experiments were made upon dogs which were kept for some time before operation and during the entire course of the experiment in nitrogenous equilibrium. For this purpose a purin-free diet of casein, cracker dust and lard was used and the *per diem* amount of water limited to 600 cubic centimeters. The animals were kept in the usual well-ventilated metabolism cages and were catheterized at the end of each twenty-four hours. After each catheterization the bladder was washed out and the wash water added to the catheterized urine and that voided naturally and the whole made up to a definite volume. This urine was carefully preserved from changes of any kind until the analyses were made. When albuminuria caused the appearance of coagulable protein in the urine, which occasionally happened during a short period immediately following operation, this was removed by heat and acetic acid, the coagula being thoroughly boiled out with water and the washings added to the urine.

Upon these twenty-four samples the following determinations were made: Total nitrogen by the Kjeldahl method; ammonia by the Shaffer method and urea by the Mörner-Sjoquist method. The investigation was so delimited mainly because the changes in total nitrogen and in the elimination of urea and ammonia are the only points in dispute and in part on account of the negative nature of the results obtained by Bradford and by Bainbridge and Beddard in regard to other substances.

The general procedure was to place the animal in nitrogenous equilibrium, conduct control determinations for a period of three days, operate, and after allowing two or three days for recovery from the acute effects of the operation make determinations during one or more three day periods.

The operative procedure differed somewhat from that of the English investigators. Instead of removing a wedge of kidney substance the upper half of a kidney was removed and the bleeding from the cut surface controlled by a mattress suture. This method, although it narrows the pelvis somewhat, is not followed by infarction or hemorrhage and gives better results than that recommended by Bradford. At a subsequent operation either one-half the opposite kidney, or the entire kidney

TABLE I.

(*Dog 4, ¼ and ½ reduction.*)

| Date. | Urine. | | | | | | | Faeces. | | Weight. Gms. | Notes. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Amt. c.c. | Sp. Gr. | Total N Gms. | Urea. Gms. | Per Cent. | Ammonia. Gms. | Per Cent. | Total N. Gms. | Per Cent. N. | | |
| Control Period. | | | | | | | | | | | |
| Oct. 21 | 525 | 1013 | 6.84 | 5.67 | 82.9 | 0.323 | 4.7 | 0.1285 | 3.0 | 13,780 | |
| 22 | 430 | 1017 | 6.45 | 5.35 | 83.0 | 0.320 | 4.9 | 0.1285 | 3.0 | 13,860 | |
| 23 | 545 | 1012 | 6.65 | 5.46 | 82.1 | 0.318 | 4.8 | 0.1285 | 3.0 | 13,840 | |
| 24 | ½ right kidney removed—wt. 25 gms. | | | | | | | | | | |
| 26 | 430 | 1016 | 8.25 | 7.09 | 86.0 | 0.338 | 4.1 | 0.1894 | 4.2 | 13,410 | Albuminuria |
| 27 | 430 | 1018 | 7.22 | 6.04 | 83.4 | 0.315 | 4.4 | 0.1894 | 4.2 | 13,400 | |
| 28 | 480 | 1014 | 7.81 | 6.53 | 83.5 | 0.293 | 3.8 | 0.1894 | 4.2 | 13,240 | |
| Nov. 4 | 325 | 1020 | 6.69 | 5.62 | 85.5 | 0.231 | 3.5 | 0.2641 | 4.4 | 13,500 | |
| 5 | 440 | 1017 | 6.56 | 5.60 | 86.5 | 0.286 | 4.3 | 0.2641 | 4.4 | 13,770 | Diarrhoea |
| 6 | 430 | 1016 | 6.26 | 5.18 | 82.9 | 0.266 | 4.2 | 0.2641 | 4.4 | 13,610 | |
| 7 | 325 | 1018 | 5.25 | 4.34 | 82.6 | 0.240 | 4.6 | 0.2641 | 4.4 | 13,760 | |
| 8 | 460 | 1015 | 5.9 | 4.87 | 82.5 | 0.321 | 5.4 | 0.2641 | 4.4 | 13,840 | Diarrhoea |
| 8 | ½ left kidney removed—wt. 22 gms. | | | | | | | | | | |
| 20 | 410 | 1012 | 5.89 | 4.93 | 83.6 | 0.264 | 4.5 | 0.1765 | 3.07 | 11,810 | |
| 21 | 440 | 1013 | 5.65 | 4.83 | 85.6 | 0.291 | 5.1 | 0.1765 | 3.07 | 11,960 | |
| 22 | 510 | 1010 | 5.52 | lost. | | lost. | | 0.1765 | 3.07 | 11,930 | 100 c.c. extra water |
| Dec. 3 | 725 | 1008 | 7.14 | 6.14 | 85.9 | 0.343 | 4.8 | 0.6335 (?) | 4.68 | 12,250 | 300 c.c. extra water |
| 4 | 615 | 1009 | 6.39 | 5.31 | 83.1 | 0.298 | 4.7 | 0.6335 (?) | 4.68 | 12,285 | " |
| 4 | 3d operation—death in 3 hours. Oedema of lungs. | | | | | | | | | | |

Weight of kidney removed at first and second operations.. 47 gms.
Weight of kidney found at autopsy..... 43.7 gms.

was extirpated and in the case of the former the remaining half of this kidney was taken out at a third operation. In some instances one entire kidney and half the opposite kidney were removed at one operation without any immediate ill effect. The present work includes metabolism studies on four dogs with varying degrees of kidney reduction, but a somewhat exhaustive study of the general effects of extirpation and of the process of repair in the kidney after various kinds of operative injury will be published later by Dr. J. A. Sampson and myself. At present it is sufficient to state that we have had no difficulty in keeping animals alive and in good condition without either general or local disturbances after

## TABLE II.

(*Dog* 21, ⅔ *reduction.*)

| Date. | Urine. | | | | | | | Faeces. | | Weight Grams. |
|---|---|---|---|---|---|---|---|---|---|---|
| | Amount c.c. | Sp. Gr. | Total N. Grams. | Urea. Gms. | Urea. Per Cent. | Ammonia Gms. | Ammonia Per Cent. | Total N. Grams. | Per Cent. N. | |
| Dec. 3 | | Rt. kidney (wt. 29 gms.) ⅓ Lt. kidney (wt. 10 gms.) | | | | Removed | | | | 8,410 |
| 17 | 440 | 1014 | 6.47 | 5.59 | 86.4 | 0.282 | 4.4 | 0.1806 | 4.34 | 8,210 |
| 18 | 437 | 1014 | 6.18 | 5.70 | 83.7 | 0.269 | 4.4 | 0.1806 | 4.34 | 8,230 |
| 19 | 435 | 1015 | 5.24 | 4.28 | 81.7 | 0.259 | 4.9 | 0.1806 | 4.34 | 8,225 |
| Jan. 6 | | Killed | | | | | | | | 8,050 |

Weight of kidney removed at single operation..... 39 gms.
Weight of kidney remaining at autopsy..... 16.5 gms.

Total weight ..... 55.5 gms.

## TABLE III.

(*Dog* 12, *spontaneous nephritis, unilateral nephrectomy.*)

| Date. | Urine. | | | | | | | Faeces. | | Weight Gms. | Notes. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Amt. c.c. | Sp. Gr. | Total N. Gms. | Urea. Gms. | Urea. Per Cent. | Ammonia. Gms. | Ammonia. Per Cent. | Total N. Gms. | Per Cent. N. | | |
| Nov. 16 | 250 | 1031 | 6.55 | 5.04 | 77.2 | 0.276 | 4.2 | 0.1514 | 2.93 | 17,820 | Alb. 4% Casts + + + |
| 18 | 300 | 1028 | 6.71 | 5.39 | 80.4 | 0.290 | 4.3 | 0.1514 | 2.93 | 17,610 | |
| 19 | 212 | 1036 | 6.42 | 4.99 | 77.8 | 0.345 | 5.3 | 0.1514 | 2.93 | 17,520 | |
| 20 | 260 | 1034 | 6.66 | 5.22 | 78.4 | 0.362 | 5.4 | 0.1514 | 2.93 | 17,500 | |
| 22 Dec. 6 | Right kidney removed, weight 72 gms. | | | | | | | 0.2058 | 3.58 | | Alb. 2¼% Casts + + + |
| 10 | | | | | | | | 0.1981 | 3.44 | | Alb. 1½% o Casts + + |
| 11 | 405 | 1017 | 7 80 | 6.05 | 77.6 | 0.335 | 4.29 | 0.1981 | 3.44 | 17,110 | 300 c.c. extra water |
| 12 | 505 | 1015 | 6.44 | 5.23 | 81.1 | 0.313 | 4.86 | 0.2108 | 3.59 | 17,100 | 300 c.c. extra water |
| 16 | | | | | | | | 0.2108 | 3.59 | | |
| 20 | Died during operation on other kidney, which weighed 68 gms. | | | | | | | | | 16,650 | |

the removal of one-quarter, one-half, and in some instances three-quarters of the total kidney substance at one operation. The removal of larger amounts and occasionally of three-quarters is followed by severe general disturbances which have rendered futile all attempts to maintain the animal in nitro-

genous equilibrium. In one instance after removal of a considerable portion of the kidney substance, a nephritis developed, which added to the value of the experiment rather than otherwise.

TABLE IV.

(*Dog* 13, 3/4 *and* 6/7 *reduction; acute nephritis.*)

| Date. | Urine. | | | | | | | Faeces. | | Weight Gms. |
|---|---|---|---|---|---|---|---|---|---|---|
| | Amount c.c. | Sp. Gr. | Total N. Gms. | Urea. Gms. | Urea. Per Cent. | Ammonia. Gms. | Ammonia. Per Cent. | Total N. Gms. | Per Cent. N. | |
| Nov. 2 | Half left kidney removed, weight 14.5 gms. | | | | | | | | | 15,840 |
| 13 | Entire right kidney removed, weight 42 gms. | | | | | | | | | 14,000 |
| 16 | Nephritis. Alb.=½ per cent. Abundant casts. | | | | | | | 0.2125 | 5.53 | 13,100 |
| | | | | 5.29 | | 0.166 | | | | |
| 21 | 410 | 1011 | 5.72 | | (?) 92.5 | | 2.9 | | | 12,970 |
| | | | | 4.84 | | 0.251 | | | | |
| 22 | 320 | 1016 | 4.78 | | 80.2 | | 5.2 | | | 13,070 |
| | | | | 4.62 | | 0.272 | | | | |
| 23 | 375 | 1019 | 5.40 | | 85.3 | | 5.2 | | | 13,270 |
| Dec. 3-8 | Does not eat—more or less vomiting | | | | | | | | | |
| | | | | 2.87 | | 0.143 | | | | |
| 6 | 267 | 1016 | 3.61 | | 79.5 | | 4.0 | 0.0990 | 5.74 | 12,680 |
| | | | | 2.43 | | 0.119 | | | | |
| 7 | 222 | 1020 | 3.04 | | 79.9 | | 3.9 | 0.0990 | 5.74 | 12,590 |
| 9 | Eight gms. of remainder of left kidney removed. | | | | | | | | | |
| 10-20 | Gastro-intestinal disturbance—does not eat. Alb, 1½-2 per cent. Casts abundant. | | | | | | | | | |
| 16 | | | | | | | | 0.1766 | 6.66 | |
| | | | | 1.56 | | 0.040 | | | | |
| 18 | 165 | 1016 | 1.89 | | 82.5 | | 2.1 | 0.0557 | 6.65 | 10,350 |
| | | | | 1.24 | | 0.028 | | | | |
| 19 | 120 | 1017 | 1.47 | | 84.4 | | 1.2 | 0.0557 | 6.65 | 10,200 |
| | | | | 0.437 | | 0.527 | | | | |
| 20 | 195 | 1008 | 0.689 | | 63.4 | | 7.6 | 0.0557 | 6.65 | 10,000 |
| 21 | Chloroformed. | | | | | | | | | |

Weight of kidney substance removed..... 64.5 gms.
Weight of remaining kidney..... 11 gms.

Total weight ..... 75.5 gms.

The results are shown in Tables I, II, III and IV. As a normal control period is given in one experiment only (Table I) a series of controls[8] are presented in Table V. These give the figures in six dogs fed on the same diet and kept under the same conditions as the dogs with kidney reduction. The averages only are given and are based on the figures of periods of three to five successive days.

Experiment I shows no appreciable changes in metabolism after the removal of one-half of one kidney or one-half of each kidney. The animal unfortunately died a few hours after the

[8] Taken from paper by Pearce, R. M., and Jackson, H. C., Experimental Liver Necrosis; III, Nitrogenous Metabolism, *Jour. Exper. Med.*, 1907, ix, 552.

TABLE V.

*Normal Dogs—Control.*

| Dog. | Total N. Gms. | Urea. Gms. | Urea. Per Cent. | Ammonia. Gms. | Ammonia. Per Cent. | Creatinin. Gms. | Creatinin. Per Cent. | Undetermined N. Gms. | Undetermined N. Per Cent. | Average of |
|---|---|---|---|---|---|---|---|---|---|---|
| *A* | 6.35 | 4.96 | 78.1 | 0.019 | 7.9 | 0.606 | 9.5 | 0.259 | 4.1 | Five 24° periods. |
| *B* | 3.30 | 3.24 | 86.1 | 0.128 | 3.3 | 0.278 | 7.4 | 0.108 | 2.9 | Four " " |
| *C* | 4.10 | 3.98 | 78.4 | 0.450 | 8.8 | 0.350 | 6.7 | 0.326 | 6.0 | Four " " |
| *D* | 7.04 | 5.39 | 81.2 | 0.395 | 5.5 | 0.345 | 4.8 | 0.568 | 8.1 | Three " " |
| *E* | 6.56 | 5.30 | 80.7 | 0.428 | 5.8 | 0.281 | 4.2 | 0.537 | 7.9 | Three " " |
| *F* | 6.57 | 5.61 | 85.3 | 0.364 | 5.5 | 0.354 | 5.4 | 0.213 | 3.4 | Three " " |
| *G* | 5.36 | 4.34 | 82.0 | 0.332 | 6.7 | 0.208 | 3.9 | 0.377 | 7.4 | Four " " |
| Average Per Cent. | | | 81.7 | | 6.2 | | 6.0 | | 5.7 | |

third operation with no lesions discoverable at autopsy except a very extensive edema of the lungs.

Experiment II indicates that the removal of two-thirds of the entire kidney substance at one operation does not interfere with the general condition of the animal as shown by the constant weight and normal metabolism figures.

The third experiment made on an animal with a spontaneous nephritis, a condition occasionally found in stray dogs, shows that this lesion has no effect on metabolism, even after the kidney substance is reduced one-half by a unilateral nephrectomy.

The fourth experiment was not planned for a study of metabolism, but when it was found that an animal with but one-quarter of its kidney substance had developed an acute nephritis, thus diminishing, it was assumed, the functional capacity of the fractional portion of the kidney remaining, it seemed too good an opportunity to lose and the animal was placed on a constant diet and the metabolism experiments carried out six days later. This animal, despite the great reduction of kidney substance and the presence of a nephritis, had a normal metabolism during the first three day observation period. Two weeks later, however, when appetite had begun to fail equilibrium was lost, although no change in the percentage relations of nitrogen was evident.

But after another period of two weeks had elapsed, and the

kidney substance had still further been reduced by operation, leaving the animal with but one-seventh of its original kidney material, a change in the urea-ammonia ratio, indicative of inanition, occurred. That this final change is due, as Bainbridge and Beddard claim, to inanition there can be no doubt. Up to this point, the beginning of starvation, the changes in urea described by Bradford were not observed.

The discrepancy between these results and those of Bradford require a word of comment. Bradford, it will be remembered, found an increase of urea to occur with considerable frequency after removal of one-half or two-thirds of the kidney substance and almost constantly after removal of three-fourths. In the experiments here quoted the urea remained constant until the period of inanition. In my experiments exact twenty-four-hour samples of urine were obtained by catheterization, the animals were kept on a constant diet (casein, lard, cracker dust) and the more exact Mörner-Sjoquist method for the determination of urea was used. Bradford's estimations on the other hand were based on the amount of urine voided naturally in twenty-four hours; the diet (meat and biscuit) was weighed accurately but was administered according to the appetite of the animal; and the urea was estimated by the relatively inaccurate hypobromite method. The differences in methods explain, I think, the variance in results.

Creatinin estimations were not made in these experiments on account of the negative results obtained by Bainbridge and Beddard. The undetermined nitrogen was therefore not calculated, but if the averages for creatinin in normal dogs, presented in Table V, are taken as indicating the probable creatinin excretion and added to the urea and ammonia percentage it is found that the undetermined nitrogen does not in any instance, except in the dog with spontaneous nephritis (Table III) and in the later period of Dog 13 (Table IV), vary widely from the normal average of five and seven-tenths per cent. In this regard the nitrogen determination would therefore also appear to be normal. As far as the urine is concerned it would appear that no evidence is at hand to indicate that the kidney, through an internal secretion or otherwise, has any influence on general nitrogenous metabolism and I believe the theory of internal secretion in this regard at least may be set aside. There remains, however, the very important

question of why the removal of more than three-fourths of the kidney substance leads to loss of appetite and consequent inanition. Although vomiting occasionally occurred in these animals it did not seem to be sufficiently frequent or severe to indicate a general gastro-intestinal disturbance. To test this point extirpation of the kidney was done on two dogs after the establishment of a gastric fistula. In this way it was hoped that the food necessary for nitrogenous equilibrium could be introduced artificially and by examination of both urine and feces some light might be thrown on the cause of the disturbance. These efforts were rendered futile, however, by the inability of the stomach to retain the materials introduced. The conclusion is inevitable therefore that although the kidney appears to have no direct influence on nitrogenous metabolism the removal of large portions of its substance does indirectly lead to disturbances of general nutrition by interfering apparently with the functions of the alimentary canal.

*Examination of the Feces.* The occurrence of serious gastric and intestinal disturbances in these animals after kidney reduction and their general similiarity to lesions occurring occasionally in man in the course of chronic nephritis led me, in view of our more recent ideas of the chemical control of the body and the influence of one secretion on another, so well brought out by Starling and Baylis's investigations, to study the feces of the animals in order to determine if partial nephrectomy had any influence on digestion, absorption or elimination into the intestine. Brainbridge and Beddard's claim that the disturbance in metabolism is due to inanition dependent on vomiting and diarrhea with eventual failure to take food and not to a direct influence of the kidney dodges the question. The point to be determined is whether or not the gastric and intestinal disturbances are caused by faulty absorption or by digestive disturbances due to the elimination into the intestine of products normally removed by the kidneys. The demonstration of such a relation would be important not only as an illustration of the chemical interrelationship between various organs, but would also aid in explaining similar disturbances associated with the nephritis of man.

These latter which, I understand, are frequently so severe as to present symptoms closely resembling a violent gastroenteritis have been ascribed in part to alterations of the mucosa

due to edema, and in part to the influence of the uremic condition on the central nervous system. While these explanations account for many of the symptoms, others, according to von Noorden,[9] must be attributed to toxic chemical action. In fact recent investigations show that in uremia substances usually eliminated by the kidneys are secreted vicariously into the alimentary tract. "Of these, the most irritating chemically is ammonia, which is formed in the intestine by decomposition of the secreted urea. It is also noticeable that the feces in uremic diarrhea are extremely rich in ammonia."

Studies of the feces having for their object the determination of the degree of absorption in nephritis, for which we are indebted mainly to von Noorden, show that the absorption of fats is very complete. The situation in regard to nitrogen is not so clear, the loss in some cases being greater than normal while in others an abnormally high percentage is found. The variation in some individuals, without a corresponding change in diet, or in the nature of the stools, or in the general condition and with no change in the percentage of dry substances or fat content of the feces, led von Noorden to the conclusion that the increase of nitrogen was due not to impaired absorption, but to the vicarious excretion of metabolites stored up in the organism. In many cases the excretion remained normal. High amounts, above three grams daily, were found in nephritis only in diarrhea (uremic) and were due largely to a high content of ammonium salts, constituting sometimes ten to twenty per cent. of the total fecal nitrogen.

In the four experiments tabulated above the total nitrogen in the feces evacuated during control periods and periods of metabolism study was estimated. The results as seen in the tables indicate no marked change in the total nitrogen or its percentage relation, except possibly in Experiment IV. In this animal with but one-seventh of its kidney substance, which after the first operation developed a severe nephritis, the *percentage* of nitrogen in the feces apparently shows a somewhat marked increase as compared with the other dogs. Unfortunately, no control figures on this animal are at hand. The low total nitrogen combined with a high percentage would appear to indicate the presence of substances of a higher nitro-

[9] Von Noorden, C., Metabolism and Practical Medicine (Vol. ii). Chicago, 1907.

gen percentage content (*e. g.*, ammonia) than those normally present in the feces. This phase of the problem will be further investigated.

The inanition due to gastro-intestinal disturbance cannot therefore be explained by impaired absorption, or, except as possibly indicated by Experiment IV, by an undue elimination of nitrogenous substances. Irritation by increased elimination of toxic substances, non-nitrogenous in nature, may be a factor, but upon this point I have as yet no observations.

## CONCLUSIONS.

1. The removal of one-half, two-thirds and sometimes three-quarters of the kidney substance in the dog causes no change in the general nitrogenous metabolism as determined by estimations of the total nitrogen, urea and ammonia elimination by the urine.

2. The removal of larger amounts, and sometimes of three quarters of the substance, leads to the metabolism condition of starvation. This, however, is apparently the result of the gastro-intestinal disturbance constantly associated with extensive kidney reduction and not of a disturbance of general nitrogenous metabolism.

3. The determination of the amount of fecal nitrogen indicates that the gastro-intestinal disturbance is not due to diminished absorption; and except in one instance there was no evidence of its being due to an increased elimination of nitrogenous substances into the intestine.

4. These experiments do not support the theory that the kidney furnishes an internal secretion having an important influence on general nitrogenous metabolism. At least, if such a function exists, it is not disturbed by the removal of three-quarters of the kidney substance.

5. The metabolism in excessive kidney reduction is that of inanition dependent on gastro-intestinal disturbances presumably due to faulty chemical correlation. In this connection further knowledge concerning the elimination into the intestines of toxic substances is desirable.

# CONCERNING THE PRESENCE OF NEPHROTOXIC SUBSTANCES IN THE SERUM OF ANIMALS WITH EXPERIMENTAL NEPHRITIS.*

By RICHARD M. PEARCE, M. D.
AND
H. P. SAWYER, M. D.

During the period of the active investigation of cytotoxic immune sera many attempts were made to utilize the results of the study of nephrotoxic sera in the explanation of various complications of chronic renal disease. It was assumed that if the injection into an animal of kidney parenchyma caused the appearance in the serum of that animal of a substance toxic, upon injection, for the kidney of another animal (heteronephrotoxin) it should be possible also to produce toxic substances in the serum of the same animal by so injuring its kidney as to cause degeneration of the renal cells. The production of such a serum (autonephrotoxin) by injuring one kidney, as by ligation of ureter, vessels, or entire pedicle, was attempted by several investigators, who claimed to be able to thus produce histological changes in the opposite kidney with the appearance of albumin in the urine. The serum of such animals also, it was claimed, had a similar effect if introduced into a normal animal of the same species (isonephrotoxin). Upon such experiments was based the theory that in chronic nephritis the continual degeneration of renal parenchyma was accompanied by an equally constant formation of autonephrolysin, the one dependent on the other, and that there was thus brought into play a vicious circle capable of explaining the course of this disease. Unfortunately for this and other theories based on similar observations, much of the early work on immune cytotoxins, on account of faulty methods, has been discarded; the theory of specificity has been set aside, and the observation concerning the production of autonephrotoxin by experimental ligation cannot be confirmed.

There is, however, a phenomenon brought out by the investigations along this line which remains unexplained and

* Work aided by a grant from the Rockefeller Institute for Medical Research. Published also in *Jour. of Med. Research*, 1908, xix, 260.

which is of peculiar interest in connection with any discussion of the pathology of nephritis. This is the observation of Lindemann[1] that the serum of an animal suffering from an experimental chromate nephritis has the power to produce lesions of the kidney when introduced into a normal animal and also my own[2] observation of similar results when the serum of dogs with spontaneous nephritis, or of those with lesions due to nephrotoxic serum, as had also been noted by Bierry,[3] are introduced into normal dogs. Such injections cause the excretion of albumin and casts and histological changes in the kidney. These observations which, as far as I am aware, have never been questioned, indicate the presence in the serum either of a substance formed anew during a nephritis or an accumulation of toxic substances (metabolites) normally eliminated by the kidney. The phenomenon is quite distinct from that of the action of a substance produced by immunization, as it represents presumably the action of a substance or substances resulting from tissue destruction, or faulty function, or both. If found to be a constant attribute of the serum of experimental nephritis it is a matter of extreme importance in connection with the pathology of chronic nephritis. We have, therefore, largely on account of the interest of one of us in various problems of chemical correlation as applied to the kidney[4] re-opened the subject in the hope of determining upon what factors the observation in question rests.

*Methods.* From the outset the object of our investigation has been not so much the accumulation of positive evidence in support of this phenomenon as a thorough control study of the possibilities of error. As we have taken the appearance of coagulable protein in the urine as the criterion of kidney injury, we have attempted to control every other possible source of such protein. For this reason and because the phenomenon has been frequently quoted and generally accepted by writers on diseases of the kidney we present our methods

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[1] Lindemann, W. Ueber das Wesen der toxischen Nephritis. *Centralb. f. allg. Path. u. path. anat.*, 1900, xi, 308.

[2] Pearce, R. M. An experimental study of nephrotoxins. *Univ. of Penn. Bull.*, 1903, xvi, 217.

[3] Bierry, H. Recherches sur l'injection de sang et de sérums nephrotoxiques au chein. C. R. Acad. d. Sciences, 1901, cxxxii, 1145.

[4] Pearce, R. M. The theory of chemical correlation as applied to the pathology of the kidney. Annual Address before the Philadelphia Pathological Society, April 23, 1908.

and results in considerable detail. As this study is largely a control investigation of a definite phenomenon and not of the methods of producing it, and as Bierry and Pearce are in accord concerning the action of the serum of an animal in which nephritis has been produced by a nephrotoxic immune serum, we have not repeated the experiments of the former, but have adopted, instead, Lindemann's simpler method of utilizing the serum of animals with chromate nephritis. A study has also been made of the effect of the serum of animals with uranium nephritis.

The demonstration of the possible toxic action of a serum on the kidney has been attempted in two ways; first by the examination of the urine after the injection of the serum of animals with experimental nephritis and second, the action of such serum, in vitro, upon renal cells. Dogs and rabbits were used. In experiments of the first type the urine was examined for several days or a week for albumin and casts. This is very important in both dogs and rabbits, but especially in the former on account of the frequency of spontaneous chronic nephritis. The animals which were to furnish the serum received injections of either potassium chromate or bichromate or of uranium nitrate. The former were given subcutaneously to rabbits in doses .03 gram and to dogs .06 gram daily or every other day, and the latter in like manner in doses of .0075 gram to rabbits and .015 gram to dogs. An estimation of the degree of kidney injury was obtained by daily examination of the urine. The animals were bled from the femoral artery after periods varying from two to five days. The serum thus obtained was injected into normal animals, always of the same species, as soon as possible after bleeding, usually within two to four hours, though occasionally on account of the slow separation of the clot, the serum stood over night before being used. The injections into rabbits were made into the ear vein without anesthesia. Dogs received the serum either in the abdomen without anesthesia or, after incision of the skin, in a small subcutaneous vein opposite the second joint of the hind leg under light ether anesthesia.

In these experiments the presence of coagulable protein and of casts in the urine has been taken as evidence of an influence of the serum upon the kidney. All possibilities of contamina-

tion of the urine were avoided. The animals were kept in metabolism cages which were scrupulously cleaned daily and the food limited to dog biscuit, which could not readily become mixed with the urine. In those experiments with dogs in which the skin was incised before the injection the wound was carefully dressed in order to prevent oozing of blood or serum. Dogs developing a diarrhea, as occasionally happened, were discarded.

Owing to the almost constant presence of mucin in the dog's urine, as shown by Jackson and one of us[5] elsewhere, and the necessity of controlling this in the test for albumin, the following procedure was adopted: Four portions of absolutely clear filtered urine were placed in test-tubes; the first served as control, to the second acetic acid only was added, to the third acetic acid and potassium ferrocyanide solution ,and the fourth was heated and acetic acid then added. The amount of acid added to each tube was always the same and approximately the same quantity urine was used daily. By this method the clouding or precipitate due to mucin was, we think, accurately controlled. This clouding of normal dog's urine by the presence of mucin may be expressed thus o, +, +, +. This we have taken as a normal standard and when clouding in both third and fourth tubes has been greater than that in the second we have considered it evidence of the presence of protein, and the degree of clouding we have indicated by multiplying plus signs.

The centrifugalized sediment of the urine has been examined with special regard to the presence of casts, renal cells, and red and white blood corpuscles.

*Results.* Eight dogs received the serum of dogs with chromate nephritis. Of these four were injected intravenously. In one, receiving the serum in dose of one cubic centimeter to five hundred and seventy-eight grams of body weight, no change in the urine occurred. In a second and a third, doses of one to four hundred and ninety-three and one to three hundred and fifty respectively, a trace of protein was present in the urine on the day following the injection. In the latter of these a few finer granular casts, renal cells, and leucocytes

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[5] Pearce, R. M., and Jackson, H. C. Concerning the production of cytotoxic sera by the injection of nucleo-proteids. Jour. Infect. Dis., 1906, iii, 742.

were found in the sediment. The fourth experiment is given in detail, as follows:

Dog 61.—February 28, female, weighing fifteen thousand three hundred thirty grams, placed in metabolism cage.

February 29 to March 3, urine contains no albumin and sediment is negative.

March 3, received in small vein of leg under light ether anesthesia, thirty-two cubic centimeters (dose 1 to 480) of serum of chromate dog.

March 4, cage urine (seventy cubic centimeters, Sp. Gr. 1034) contains a considerable amount of coagulable protein which unfortunately was not estimated. Sediment shows numerous fine fat globules and cells of the type of renal cells and a few polymorphonuclear leucocytes; no casts, no red blood corpuscles. Urine from bladder at 11 a. m. amounts to seventy cubic centimeters with a specific gravity of 1020 and contains five-tenths per cent. protein by the Esbach method. Sediment contains numerous cells of renal type and a few leucocytes. Urine from bladder at 3 p. m., sixteen cubic centimeters in amount, Sp. Gr. 1034, protein two and five-tenths per cent., sediment unchanged.

March 5, cage urine amounts to one hundred fifty-four cubic centimeters, specific gravity is 1042 and Esbach method gives two and five-tenths per cent. protein; sediment as on the fourth. Urine from bladder at 9 a. m. contains but a trace of protein with elements of sediment fewer in number.

March 6, protein twenty-five hundredths per cent., sediment contains few renal and pus cells but no casts.

March 7, ditto.

March 8, urine, one hundred sixty-five cubic centimeters, specific gravity 1038, color amber, protein twenty-five hundredths per cent., sediment contains a small number of renal cells and leucocytes and fat globules and for the first time a few finely granudar casts.

March 9 and 10, protein and sediment as on the eighth.

March 11, two hundred and seventy-five cubic centimeters of urine, specific gravity 1029, protein in traces which cannot be estimated by Esbach. Sediment negative except for an occasional leucocyte.

March 12 to 15, urine normal. Weight of dog on March 15 fourteen thousand four hundred twenty grams.

In order to control the possible toxic action of ether on the kidney and also any accidental admixture of protein to the urine, by oozing of blood or serum from the incision over the injected vein, four dogs received serum injected directly into the peritoneal cavity without ether and without incision. The dose varied from one to two hundred and eighty-seven to one to four hundred and ninety. In all of these the injection was immediately followed by the appearance in the urine for a period of two to five days of traces

of protein and small numbers of finely granular casts, but in none was the amount of protein equal to that in the urine of dog 61 previously described. The following experiment is typical of this group:

Dog 63.—February 28, male puppy, weighing four thousand nine hundred and seventy grams, placed in metabolism cage. February 29 to March 3, urine normal. Results of tests for protein give the mucin reaction (0, +, +, +). Sediment negative.

March 4, ten cubic centimeters of chromate serum (dose 1-490) injected into peritoneal cavity.

March 5, protein tests, 0, +, 3+, 3+; sediment; few renal cells and leucocytes; no casts.

March 6, protein tests ditto, sediment as above with addition of a few finely granular casts.

March 7, no urine.

March 8, as on sixth.

March 9, 10, and 11, urine normal.

It is worthy of note that the lesions produced were not as severe or as constant as those described by Lindemann.

The experiments with uranium serum include one dog injected intravenously and four intraperitoneally. The intravenous injection (dose 1:1000) was followed by an elimination of casts without albuminuria. The casts were present in small numbers and were of a finely granular type with an occasional hyaline or epithelial cast and a few renal and white blood cells. The casts appeared on the first and third days after injection and could not be found on the fourth and fifth days. Casts had not been present in the preliminary examination covering a period of six days.

On account of the peculiar result of this experiment the animal was injected intraperitoneally on the fifth day. The same serum, which had been kept on ice, was used (in the dose of 1:370). Casts of the finely granular and hyaline types and renal cells and leucocytes reappeared in the urine for two days, but no protein could be detected.

Of the three experiments in which uranium serum was injected intraperitoneally, one (dose 1:408) was negative and the other two (doses 1:400 and 1:635) showed a transient elimination of small amounts of coagulable protein with, in one, a few hyaline and finely granular casts and in the other no casts.

Although these experiments with dogs give a fair proportion of positive results, a small number of similar experiments with rabbits were absolutely negative. Three rabbits received uranium serum and two chromate serum in doses of five to twelve cubic centimeters (1:110 to 1:350) with no change whatever in the urine.

Although this investigation has to do mainly with the effect of the serum of experimental nephritis, the detection in the course of our routine examinations of several instances of spontaneous nephritis has permitted the testing of such serum. In an earlier communication, one of us[1] describes the occurrence of albuminuria with the elimination of casts in three of seven dogs receiving such serum intravenously. Of the present experiments, two in number, one confirms this earlier experience. The serum of a dog with spontaneous nephritis, eliminating from two to five per cent. protein and an abundance of casts throughout the month during which it was under observation had a definite nephrotoxic power (in the dose of 1:210). The serum of a second dog with a less severe nephritis had no effect in the same dose.

The occurrence of spontaneous nephritis in the rabbit was observed but once. An animal eliminating .5 to 1.25 per cent. protein daily was bled and its serum injected in doses of ten cubic centimeters (1:150) into two rabbits with no effect.

In three instances dogs with spontaneous nephritis were utilized in another way. It occurred to us that if the serum of an experimental nephritis has a toxic action on a normal kidney it might have the power to aggravate an existing spontaneous nephritis. One of these dogs therefore was injected, intravenously, with uranium serum (dose of 1:400) and a second with chromate serum, intraperitoneally (dose of 1:460), but without effect on the elimination of protein or casts. In a third experiment of this type a dog weighing nine thousand ten grams, with a very severe nephritis, received at the same time forty cubic centimeters of uranium serum, intravenously, and twenty cubic centimeters in the abdomen, without result.

A word may be said about another phase of this subject. Bierry and also Pearce have shown, apparently conclusively, that the serum of a dog suffering from a nephritis caused by

[1] Pearce, R. M., and Jackson, H. C., loc. cit.

a heteronephrotoxic serum (prepared by injecting the rabbit with dog's kidney) has a definite nephrotoxic power when injected into the blood stream of a second dog. We have not repeated these experiments, but in the course of our work on another problem we found it necessary to procure the reverse type of immune nephrotoxic serum, that is, one toxic for the rabbit's kidney (prepared by injecting rabbit's kidney into the dog). This serum had a definite toxic action on rabbit's kidney, but the serum of rabbits so treated when injected into normal rabbits (dose 1:100 to 1:200) had no nephrotoxic effect, as is the case in the dog.

It is noteworthy that by no method of experimentation have we been able to demonstrate a nephrotoxic action of the serum of rabbits with kidney injury.

The question arises as to whether the toxic action of the serum of an experimental nephritis in the dog may be due, not to some peculiar substance developing as the result of injury to kidney cells, but to metabolites retained as the result of imperfect kidney function. We have performed no experiments, such as the injection of the serum of animals with complete nephrectomy, to test this point, but have found that the serum of animals with experimental reductions of the kidney substance to one-fourth the normal amount has no effect on the kidney of normal dogs. This conclusion is based on experiments with the sera of two dogs, the serum of one obtained one month and of the other two months after extirpation of three-quarters of the kidney substance. Thirty cubic centimeters of the first serum was injected in a dog weighing five thousand four hundred forty grams and thirty-two of the latter in a dog six thousand grams in weight. In neither did protein or casts appear in the urine.

The power of the serum of experimental nephritis to agglutinate renal cells in vitro was tested with seven sera. A mixture of renal cells in salt solution was prepared from the washed kidney, and to one-half cubic centimeter lots in test-tubes were added five cubic centimeters of each of the sera to be tested. Cell mixtures and sera were used within a few hours after they were obtained. Observations were made every hour for six hours. As a control, normal dog serum was used. Three sera of dogs with uranium, three with chromate, and one with spontaneous nephritis were tested in this way. In

no instance did agglutination occur, and the degree of precipitation did not differ from that of the control. No difference in cell structure could be detected by microscopic examination.

In so far as this method of testing may be of value these results point to the absence of an isonephrotoxic activity of the serum of experimental nephritis and the results are not in accord with those obtained by injecting the same sera into the living animal.

In addition to the various methods of control which we have described, there is naturally the question of the elimination by the kidney of an excess of protein injected into the blood stream. In view of the fact that the injections have always been made into an animal of the same species and also that the amounts injected have been comparatively small, this factor could be set aside at once if it were not for a curious observation of Weiss.[6] This investigator as the result of a very extensive series of experiments came to the conclusion that all foreign sera cause albuminuria of some degree, but that homologous sera do not except when the serum of one sex is injected into the opposite sex. His evidence on the latter point, however, rests on a single experiment in which traces of protein resulted from injecting the serum of a male into a female rabbit and his quotation of Favaret's single observation of a like result upon injecting the serum of a bitch into a dog. In our control experiments, we have kept this point in mind, but have not been able to confirm it. In the dog, injections of normal dog serum in doses as high as one to three hundred, and in the rabbit of normal rabbit serum in doses of one to one hundred and fifty have failed to produce albuminuria, irrespective of the sex of the animal furnishing or receiving the serum. As we have always used homologous sera, the toxic effect of an alien serum does not come into question.

We have also controlled the possibility of a periodic albuminuria in the dog. For this purpose four dogs were set aside, and the urine of each examined daily for periods of ten days to two weeks. In none was albuminuria found nor were casts present during this time. Each gave the mucin reaction but nothing more. During this period two of these dogs

[6] Weiss, O. Ueber die Wirkungen von Blutserum-injectionen im Blut. Arch. f. d. Ges. Phys., 1896, lxv, 215.

were etherized and small quantities of blood taken from the jugular vein without any effect on the urine. These latter served therefore as controls also of our operative procedure.

The possibility of carrying over in the serum minute amounts of the salts injected must be considered. Attempts to detect, by the usual tests, the presence of chrome and uranium salts in the filtrate of the serum concentrated after coagulation have failed. Such tests, however, are not very sensitive and it is possible that traces may have been present. If present, the amount must have been so minute that it seems very improbable that they could have anything to do with the lesion described. Certainly they appear to have had no effect in the experiments with rabbits, and on this evidence alone we feel justified in ruling out the possibility of carrying over these salts in the serum.

In addition to the various controls described, we have by careful selection and elimination ruled out the possibility of an admixture to the urine of protein substances from local inflammatory conditions, as balanitis in the dog, or lesions of the uterus or vagina in the bitch. The surface of the entire body as well as the mouth of each animal has also been carefully examined for lesions capable of allowing a discharge of blood or serum. As the food has been limited to dry dog biscuit and the cage carefully screened to prevent particles dropping into the collecting bottle, we believe the presence of protein from the food can be ruled out.

In short, we have investigated every possible source of error which suggested itself, but have been unable to explain the presence of albumin in the urine except by a toxic action of the serum on the kidney.

## CONCLUSIONS.

The positive results here described confirm the observation of Lindemann, Bierry, and Pearce that the serum of dogs with various types of nephritis has a toxic action on the kidney manifested by the appearance, for a short time, of protein and casts in the urine.

A very complete series of control observations offer no explanation for the appearance of protein other than as the result of injury to the kidney.

It has not been possible to demonstrate a nephrotoxic power for the serum of rabbits with experimental nephritis and it is therefore manifestly improper to assume that this nephrotoxic power is a constant characteristic of the serum of all animals suffering from nephritis.

For this reason, although the phenomenon observed is suggestive and worthy of investigation on a larger scale, it should be utilized with caution in any theoretical explanation of the pathology of chronic nephritis.

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# A STUDY OF EXPERIMENTAL REDUCTION OF KIDNEY TISSUE WITH SPECIAL REFERENCE TO THE CHANGES IN THAT REMAINING.[1]

By JOHN A. SAMPSON, M. D.
AND
RICHARD M. PEARCE, M. D.

The following experiments in reduction of kidney tissue in dogs were undertaken in order that one of the writers might study the influence of such reduction on nitrogenous metabolism[2] and also for the purpose of determining the effect of this procedure on the remaining kidney tissue and upon the general condition of the animal.

The scanty literature of the subject may be briefly reviewed as follows:

The most extensive series of kidney reduction is that of Bradford.[3] The operative procedure of this investigator was to remove from the middle of the kidney, entering the pelvis, a wedged-shaped mass of kidney substance. This mass was equal to one-quarter to one-half of the entire kidney. After a variable period of time the entire opposite kidney was removed. In some instances a wedge was taken from each kidney and later the remaining tissue still further reduced. Of a total of thirty-three dogs, four died after the first operation and six at or shortly after the second operation. Of the twenty-three surviving the second operation, eight lived a considerable period of time and were

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[1] Aided by a grant from the Rockefeller Institute for Medical Research. Published also in *Jour. Exper. Med.*, 1908, x, 745.

[2] Pearce, R. M., The Influence of the Reduction of the Kidney Substance on Nitrogenous Metabolism, *Jour. of Exper. Med.*, 1908, x, 632.

[3] Bradford, J. R., The Results Following Partial Nephrectomy and the Influence of the Kidney on Metabolism, *Jour. of Physiol.*, 1899, xxiii, 415.

killed in good health. The effect on the kidney of the first operation was usually atrophy of the organ. This occurred also if both kidneys were operated upon. After the second operation no serious disturbance of health occurred but a variable amount of wasting, usually transitory, was the rule.

If two-thirds of the kidney was removed death usually followed while the loss of three-quarters rendered survival impossible, death occurring usually in one to six weeks, from asthenia and great wasting.

Bradford found that two grams of kidney tissue per kilo of body weight was sufficient for maintenance of life (normal ratio 6.7 grams). Tuffier[4] gives 1.5 grams, Paoli[5] states that one-half a kidney is necessary. The latter found the operation to be followed frequently by hypertrophy of the glandular epithelium, dilatation of the vessel and a new formation of glomeruli and tubules. Tuffier's operation differed from Bradford in that he removed one entire kidney first and later a portion of the other. As a result of ten experiments he found no permanent disturbance of the urine and no effect on the development of growing animals.

Von Haberer's[6] experiments on three goats and thirty-eight dogs are most unsatisfactory because many of his animals died of pneumonia. He practiced very extensive resections within very short periods of time and showed that it is possible for a dog to survive the removal of one kidney and one-third of the other at a single operation or one and a half at two operations within a week. The mortality was very high.

Passler and Heineke[7] in their work on experimental heart hypertrophy, practiced extreme kidney reduction; they followed Bradford's method, allowing an interval of four weeks between the first and second operation; in five dogs cachexia and death followed. In eighteen surviving the second operation, at intervals varying from a few days to eleven months, a third, fourth, fifth or sixth operation was done, at each a small portion of kidney substance being removed. All finally died, from operations, accident or cachexia. As their interest was chiefly in heart hypertrophy, the details of the effect of reduction on the kidney tissue remaining are not given.

Bainbridge and Beddard,[8] working with cats according to Bradford's method, reduced the kidney substance three-quarters. This caused loss of appetite, wasting and death in a few days or weeks. Descriptions of the effect on the remaining kidney tissue are not given.

## METHODS.

As our operative procedure differed from that of the other investigators it is here given in detail. If only one kidney

[4] Tuffier, T., Etudes expérimentales sur la chirurgie du rein, Paris, 1899 (quoted by Bradford).

[5] Paoli, Della resezione del rene *Cent. f. Chirurgie*, 1892, xix, 78.

[6] V. Haberer, H., Experimentelle Untersuchungen über Nierenreduktion und Funktion des restierenden Parenchyms, *Mitteilungen a.d. Grenzgebieten d. Med. u. Chir.*, 1907, xvii, 57.

[7] Passler and Heineke, Versuche zur Pathologie des Morbus Brightii, *Verhandl. d. Deutsch, path. Gesellsch.*, 1905, ix, 90.

[8] Bainbridge, F. A., and Beddard, A. P., The Relation of the Kidney to Metabolism *Proc. of the Royal Soc.*, B, 1907, lxxix, 75.

was operated upon, it was exposed through a so-called "gridiron" incision in the lumbar region by separating the muscle fibers and not cutting them. If both kidneys were exposed at one operation, this was done transperitoneally through a median abdominal incision. In the first few experiments the pedicle of the kidney was compressed by an assistant while the upper pole was excised and then the bleeding was controlled by mattress sutures of catgut and silk passing through the entire kidney substance and the upper portion of the pelvis. Later it was found easier to place catgut sutures first as shown in Figs. 1 and 2, tie them and excise the upper pole, the operation usually being bloodless, and possible without an assistant.

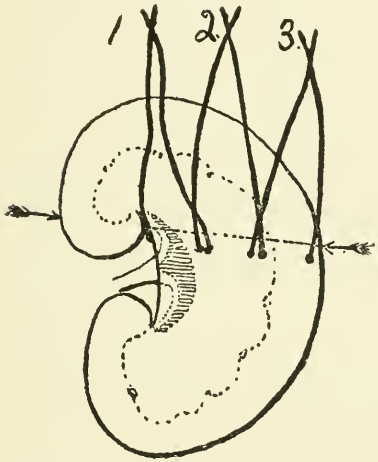


Fig. 1

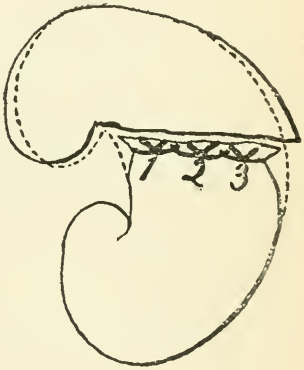


Fig. 2

Fig. 1. Technique of resection of upper pole of the kidney.

By means of a straight needle with a dull point, three interlacing mattress catgut (No. 2 Cumal) sutures (1, 2 and 3) are first passed through the kidney in a line which approximately divides the kidney in half (see illustration). Care must be taken to avoid injuring the ureter and for this reason the line of sutures is taken a little obliquely rather than straight across the kidney. These sutures are then tied, thus completely shutting off the blood supply to the upper pole. The upper pole is cut off from two to four millimeters beyond the sutures as indicated by the arrows.

Fig. 2. Immediate result of resection of upper pole of the kidney.

The dotted line indicates the original outline of the upper pole. After excising it, the base of the upper pole flares apart and the segment is thus lower and wider than before the operation. The sutures 1, 2 and 3 have been tied, thus constricting the upper portion of the remaining

kidney tissue and by making the capsule more tense the part of the kidney, left behind, is a trifle smaller than before the operation.

This operative procedure we have considered preferable to that of Bradford and other investigators because there is a minimum disturbance of the blood supply of the kidney tissue remaining. The infarcted tissue, which results from the injury, and must be absorbed, lies at one pole of an otherwise intact kidney while in the experiments of Bradford and others, it is centrally located and thus possibly disturbs the nutrition of the entire organ. Our method furthermore permits of a more accurate estimation of the amount of kidney reduction in that the degree of reduction is represented by the part excised plus that outside of and that in the immediate neighborhood of the sutures. Histological examinations of kidneys from animals dying shortly after operation have shown that the zone of necrosis rarely extends more than one-half centimeter from the sutures into the remaining kidney tissue. By the other method, after the removal of a wedge-shaped piece of tissue from the midst of the organ, the sutures necessary to approximate the parts remaining and to control bleeding of necessity destroy a mass of kidney tissue which in proportion to that excised must be much greater than that destroyed in removing one pole. By our method a portion of the pelvis is necessarily removed and there is some danger of interfering with the flow of urine into the ureter. By proper care we have found that this can be avoided.

Except for the animals used for the metabolism studies above mentioned, the dogs were fed on dog biscuits, and did not have any exercise other than that possible in fairly roomy cages. The general condition of the animals was determined by observations in regard to appetite and weight.

All material obtained at operation or autopsy was preserved in ten per cent. formalin. No subdivisions of this material were made but large sections were obtained which represented the entire mass. By this method it was possible to study in one section, cortex, pyramid, pelvis and reparative or other changes in the field of operation. By superimposing these large sections it was possible to compare directly the remaining kidney tissue with that removed at operation and also to make tracings for comparison and illustrations.

Our experiments are sixteen in number, of which two (one

death from anesthesia and another from hemorrhage shortly after operation) are excluded. The remaining fourteen experiments are divided into four groups.

GROUP I. REMOVAL OF UPPER POLE OF ONE KIDNEY.

No. 1 (Dog 40).

*Operative Procedure.*—January 23, 1908. Under ether narcosis, the upper pole of the left kidney was removed as shown in Figs. 1 and 2. The length of the left kidney was five and six-tenths centimeters and the portion remaining outside of the sutures was two and seven-tenths centimeters. At the same time the right kidney was exposed and measured.

*Termination.*—Killed on the twenty-second day.

*General Effect.*—Post-operative history was uneventful. There was a loss of weight from 11,020 to 9,710 grams.

*Effect on Remaining Kidney Tissue.*—Slight but definite atrophy. Healing is perfect, the renal tissue, compressed by the sutures, is replaced by fibrous tissue except for a small area of infarcted tissue corresponding to vessels showing obliterated endarteritis. In the fibrous tissue adjacent to the pelvis there is a small area of new bone formation. Otherwise the renal tissue is normal. The opposite kidney is apparently unaffected by the operation.

No. 2 (Dog 41).

*Operative Procedure.*—January 23, 1908. Under ether narcosis, the upper pole of the left kidney was removed. The length of the left kidney was six centimeters and the portion remaining outside of the sutures was three centimeters. At the same time the right kidney was exposed and measured.

*Termination.*—Killed on the thirty-fifth day.

*General Effect.*—Post-operative history was uneventful. There was a loss of weight from 13,610 to 10,960 grams. Four weeks after the operation the urine contained a considerable amount of coagulable protein with numerous finely granular and fatty casts, pus and epithelial cells (urine was not examined before operation).

*Effect on Remaining Kidney Tissue.*—Very slight if any atrophy. Healing is perfect except for a few areas of necrotic tissue near the pelvis. In the scar there is an area of calcified tubules. Pelvic epithelum is greatly thickened and penetrates the underlying scar tissue, forming alveolar masses of epithelial cells.

Otherwise the renal tissue is normal. Opposite kidney is apparently unaffected by the operation.

No. 3 (Dog 31).

*Operative Procedure.*—December 31, 1907. Under ether narcosis, the upper pole of the right kidney was removed. The length of the right kidney was six and two-tenths centimeters and the portion remaining outside of the sutures was three and five-tenths centimeters. At the same time the right kidney was measured.

*Termination.*—Killed on the forty-eighth day.

*General Effect.*—Post-operative history was uneventful. There was a loss of weight from 10,620 to 9,650 grams. Urine, on the fourth day, was normal but at the time of autopsy contained coagulable protein and pus cells, but no casts.

Fig. 3

FIG. 3. Tracings of sagittal sections of portions of a kidney, one portion removed at operation and the other at autopsy on the thirty-fifth day.

The upper pole was removed at operation as indicated in Figs. 1 and 2 and shows the characteristic flaring apart of the segment removed. The lower portion was removed at autopsy and has apparently atrophied but, by comparing it with a similar tracing of the opposite kidney and even from the measurements taken at the close of the operation (see Fig. 2), there is very little if any atrophy except in the tissue destroyed by the sutures and replaced by scar tissue. For description of microscopical findings see Experiment No. 2.

*Effect on Remaining Kidney Tissue.*—Very slight if any atrophy exists. Healing is perfect. There is dilatation of the pelvis of the kidney with a chronic pyelitis and thickening of the

epithelium, and extensive bone formation immediately beneath this epithelium. Calcified tubules are present in the scar tissue. Otherwise the renal tissue shows atrophy of glomeruli with fibrous thickening of Bowman's capsule and extensive round cell infiltration of both cortex and pyramid. The tubules in places are dilated and in other places compressed. The portion of kidney removed at operation and the opposite kidney shows a spontaneous chronic nephritis but less marked than that just described.

### Group II. Removal of Upper Pole of Each Kidney at One Operation.

No. 4 (Dog 65).

*Operative Procedure.*—March 7, 1908. Under ether narcosis, the upper pole of each kidney was removed. The length of the right kidney was four and five-tenths centimeters and the portion remaining outside of the sutures was two and three-tenths centimeters. The length of the left kidney was four and four-tenths centimeters and the portion remaining outside of the sutures was two and six-tenths centimeters.

*Termination.*—Died on thirtieth day.

*General Effect.*—Post-operative history was uneventful until the last week, when the animal refused food, lost weight rapidly and died on the thirtieth day.

*Effect on Remaining Kidney Tissue.*—No change in the size of the portion of the right kidney remaining. Healing was perfect except for a small area of necrosis along the line of suture, thickening of epithelium of pelvis and isolated masses of proliferating epithelium in the scar tissue. Otherwise the remaining renal tissue is normal.

The pelvis of the left kidney is filled with calculi, one occluding the lumen of the ureter. Associated with this there is an ulcerative pyelitis with abscesses involving the pelvic fat and lower portion of the pyramid. Where pelvic epithelium is intact it shows hyperplasia. There is no definite atrophy of cortex and pyramid.

No. 5 (Dog 66).

*Operative Procedure.*—March 7, 1908. Under ether narcosis, the upper pole of each kidney was removed. The length of the right kidney was four and nine-tenths centimeters and the portion remaining outside of the sutures was three centimeters.

The length of the left kidney was four and eighth-tenths centimeters and the portion remaining outside of the sutures was two and six-tenths centimeters.

*Termination.*—Killed on the fifty-fifth day.

*General Effect.*—Post-operative history was uneventful. There was a loss of weight from 4,620 to 4,340 grams.

*Effect on Remaining Kidney Tissue.*—There is no change in the size of the portion of the right kidney remaining. Healing is perfect. There is moderate thickening of the epithelium of the pelvis. Renal tissue is normal.

There is no change in the size of the portion of the left kidney remaining, and it is similar to the right kidney.

No. 6 (Dog 1).

*Operative Procedure.*—May 23, 1907. Under ether narcosis the upper pole of each kidney was removed. The length of each kidney was six centimeters and the portion remaining outside of the sutures was three centimeters. Weight of portion of right kidney removed was ten grams and of left eleven grams.

*Termination.*—Died on one hundredth and sixty-fourth day, from general peritonitis, the fifth day after the removal of the remaining portion of the left kidney when the peritoneal cavity was opened and soiled with infected urine.

*General Effect.*—Post-operative history was uneventful. The dog was in the country during the summer and became pregnant. The weight at the time of the first operation was 13,180 grams; at the second operation (pregnant) 16,010 grams and after death with the uterus empty (aborted just before death) it was 12,110 grams.

*Effect on Remaining Kidney Tissue.*—Left kidney weighed eighteen grams, length four and eight-tenths centimeters, an increase of one and eight-tenths centimeters. There was a small calculus in the pelvis about a silk suture. Healing is perfect, kidney has assumed its normal shape and except for the presence of a silk suture it would be difficult to distinguish it from a normal kidney. Microscopically there is evidence of pyelitis.

Right kidney weighed twenty-eight grams, length five and one-tenth centimeters, an increase of two and one-tenth centimeters above the portion remaining beyond the sutures at operation. Healing is perfect, microscopically renal tissue is normal. There is bone formation beneath the epithelium of the pelvis.

## Group III. Removal of One Kidney and Upper Pole of the Other at One Operation.

No. 7 (Dog 35).

*Operative Procedure.*—January 23, 1908. Under ether narcosis the right kidney was removed and the upper pole of the left. The length of the left kidney was six centimeters and the portion remaining outside of the sutures was three and two-tenths centimeters.

*Termination.*—Killed on the sixth day (dying).

*General Effect.*—There was persistent vomiting after operation with gradual loss of strength, and failure to eat; a small amount of urine was passed daily.

*Effect on Remaining Kidney Tissue.*—There is no change in the size of the portion of the kidney remaining. Extensive areas of infarction about the sutures are present with widespread calcification of the tubules. Infarcted area is one and five-tenths centimeters wide, the line of sutures being in the middle of this area. Abscess formation present about sutures.

No. 8 (Dog 69).

*Operative Procedure.*—April 6, 1907. Under ether narcosis the right kidney was removed and the upper pole of the left. The length of the left kidney was five and seven-tenths centimeters and the portion remaining outside of the sutures was three and five-tenths centimeters.

*Termination.*—Killed on the seventh day (dying). Cause of death not apparent.

*General Effect.*—Refused food and vomited persistently until killed on the seventh day. There was a loss of weight from 9,710 to 9,620 grams. Urine was voided after operation but was not examined.

*Effect on Remaining Kidney Tissue.*—There is no change in the size of the portion of the kidney tissue remaining. The area of infarction and hemorrhage is one and seven-tenths centimeters broad, the line of sutures being in the middle of this area. Very slight leucocytic infiltration about the sutures is present. There is marked proliferation of the pelvic epithelium.

No. 9 (Dog 24).

*Operative Procedure.*—December 9, 1907. Under ether narcosis the right kidney was removed and the upper pole of the left. The length of the left kidney was six and three-tenths

centimeters and the portion remaining outside of the sutures was three and five-tenths centimeters.

*Termination.*—Died on the tenth day.

*General Effect.*—Ate poorly, lost 500 grams in the first five days after the operation, hematuria.

*Effect on Remaining Kidney Tissue.*—There is no change in the size of the remaining portion of the left kidney. Infarcted area varies from one to one and three-tenths centimeters, the sutures being nearly at the junction of the normal and necrotic tissue. Otherwise the kidney is normal.

No. 10 (Dog 21).

*Operative Procedure.*—December 3, 1907. Under ether narcosis the right kidney was removed and the upper pole of the left. The length of the left was five and two-tenths centimeters and the portion remaining outside of the sutures was less than half the original length of the kidney.

*Termination.*—Killed on the thirty-fifth day.

*General Effect.*—Post-operative history was uneventful. There was a loss of weight from 8,410 to 8,050 grams. Slight albuminuria and pyuria.

*Effect on Remaining Kidney Tissue.*—There is no change in the size of the portion of the kidney tissue remaining. Healing is perfect; a few calcified tubules are present in the scar tissue. Otherwise kidney tissue is normal.

No. 11 (Dog 72).

*Operative Procedure.*—March 21, 1908. Under ether narcosis the right kidney was removed and the upper pole of the left. The length of the left kidney was six centimeters and the portion outside of the sutures was three and two-tenths centimeters.

*Termination.*—Killed on the forty-first day.

*General Effect.*—Post-operative history was uneventful. There was a loss of weight from 15,060 to 12,340 grams. Urine obtained from bladder at autopsy was normal.

*Effect on Remaining Kidney Tissue.*—There is no change in the size of the portion of the kidney tissue remaining. Healing is perfect; there are a few calcified tubules in the scar tissue. As compared with portion excised at operation and the opposite kidney there is no change in the renal tissue. Each show a chronic process characterized by round cell infiltration.

No. 12 (Dog 71).

*Operative Procedure.*—March 21, 1908. Under ether narcosis, the right kidney was removed and the upper pole of the left. The length of the left kidney was five and four-tenths centimeters and the portion remaining outside of the sutures was three centimeters.

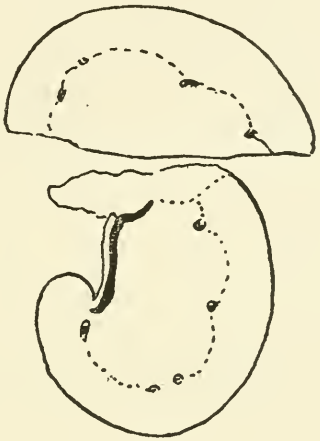

Fig. 4

FIG. 4. Tracings of sagittal sections of portions of a kidney, one portion removed at operation and the other at autopsy on the forty-first day. For description of gross appearance see Fig. 3 and for description of microscopical findings see Experiment No. 11.

*Termination.*—Killed on the fifty-seventh day.

*General Effect.*—Post-operative history was uneventful. There was a loss of weight from 8,010 to 6,060 grams.

*Effect of Remaining Kidney Tissue.*—There is no change in the size of the portion of the kidney tissue remaining. Healing is perfect, there are a few calcified tubules in the scar tissue, as in No. 11.

## GROUP IV. REDUCTION OF KIDNEY TISSUE BY MULTIPLE OPERATIONS.

No. 13 (Dog 4).

*Operative Procedure.*—October 24, 1908. Under ether narcosis the upper pole (over $\frac{1}{2}$ approximately $\frac{3}{5}$) of the right kidney was removed. November 8, 1908. The upper pole of the left was removed. The length of the left kidney was six and

five-tenths centimeters and the portion remaining outside of the sutures was three centimeters. December 11, 1908. The remainder of the left kidney was removed.

*Termination.*—Died four hours after the last operation from œdema of the lungs.

*General Effect.*—Post-operative history was uneventful. There was a loss of weight from 13,826 to 12,250 grams and there were periodic albuminuria and pus cells.

*Effect on Remaining Kidney Tissue.*—There is slight if any atrophy of remaining portion of right kidney. Healing is perfect. A cheesy material containing calculi is present in the pelvis; bone formation in scar tissue beneath the pelvic epithelium; marked hyperplasia of pelvic epithelium. Kidney tissue is normal except for areas of round cell infiltration, also present in portion excised at first operation.

No change in the size of the remaining portion of the left kidney. Healing is perfect with extensive bone formation beneath the pelvic epithelium. In the pelvic fat there is a small abscess about one of the sutures. Otherwise tissue is as in the opposite kidney.

No. 14 (Dog 13).

*Operative Procedure.*—November 2, 1907. Under ether narcosis the upper pole of the left kidney (weight fourteen and five-tenths grams) was removed. The length of the left kidney was six and two-tenths centimeters and the portion remaining outside of the sutures was two and seven-tenths centimeters. November 13, 1907. The right kidney was removed (weight forty-two grams). December 9, 1907. A segment one centimeter thick was removed (weight eight grams) from the lower pole of the remaining portion of the left kidney.

*Termination.*—Died eleven days after the last operation.

*General Effect.*—Good recovery from each operation except the last. More or less vomiting after the last operation, albuminuria one half to two per cent., abundant casts; voided urine until death and averaged 180 cubic centimeters for the last three days. There was a loss of weight from 15,840 to 10,000 grams.

*Effect on Remaining Kidney Tissue.*—The portion of the left kidney found at autopsy showed distinct atrophy and weighed eleven grams. Based on the weight of the normal right kidney this represents fourteen per cent. of the original kidney tissue. Healing from the first operation is perfect and site of second

operation is occupied by a mass of necrotic tissue extending into the pelvis and surrounded by purulent fluid. Microscopically there is evidence of an acute ulcerative pyelitis with slight pyelonephritis and extensive cast formation in the tubules. Otherwise kidney tissue is normal.

Fig. 5

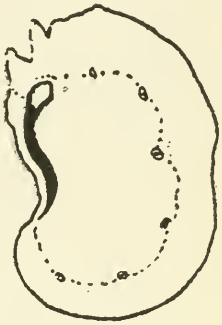

Fig. 6

Fig. 5. Tracing of sagittal section of portion of the right kidney remaining, 164 days after removal of the upper pole.

The upper pole was removed as indicated in Figs. 1 and 2.

The portion remaining shows distinct hypertrophy and the thickening of the cortex is most evident near the field of the operation. See Experiment No. 6.

Fig. 6. Tracing of sagittal section of the portion of the left kidney remaining, 159 days after removal of the upper pole.

The upper pole was removed as indicated in Figs. 1 and 2.

This is from the same dog as the kidney shown in Fig. 5 the hypertrophy is not as marked as in the other kidney but the thickening of the cortex near the field of operation is more marked and the kidney has almost resumed its normal contour. A calculus about a silk suture is present in the upper portion of the pelvis.

## General Summary.

The immediate effect of the operation on the portion of the kidney remaining is an infarction of the tissue compressed by the sutures. This area of necrosis extends but a short distance into the adjacent kidney tissue. The infarcted tissue gradually becomes replaced by fibrous tissue and in three to four weeks' time the necrotic tissue entirely disappears. The amount of fibrous tissue in time becomes so slight and the healing so perfect that it is difficult to detect the site of the operation. The renal elements sometimes persist in the infarcted area and the glomeruli apparently are more resistant than the tubules. The

tubules in the infarcted area sometimes become calcified and bone formation beneath the epithelium of the pelvis is of very frequent occurrence. The pelvic epithelium usually shows marked proliferation and may invade the field of operation in alveolar masses. Calculi may form in the pelvis of the kidney. Sutures penetrating the pelvis as well as the necrotic tissue resulting from the compression of the sutures probably furnish the nuclei for the calculi.

Removal of approximately half of one kidney did not alter either the remaining portion of that kidney or the size of the opposite kidney in two animals of this series. These experiments were terminated on the thirty-fourth and forty-seventh days. In a similar experiment of twenty-one days' duration there was slight but definite atrophy of the remaining tissue of the kidney operated upon.

Removal of approximately half of each kidney at one operation did not alter the remaining kidney tissue in two animals of the second group. The longest period of observation was fifty-four days. On the other hand in a similar experiment where 164 days elapsed, the remaining portions of each kidney had increased markedly in size.

Removal of one kidney and approximately half of the other did not alter the remaining kidney tissue in six animals in which from five to fifty-six days elapsed before termination of the experiment.

In six experiments in which one kidney was removed and approximately half of the other, three of the animals died as a result of the operation on the sixth, seventh and tenth days. The probable cause of death was renal insufficiency; the animals refused food, vomited persistently and lost strength and weight. The other three animals recovered and were killed at periods varying from five to eight weeks. The reduction of the kidney tissue to one-quarter of its original amount at one operation was attained with danger but was not necessarily fatal.

In every experiment there was a loss of weight varying from four to twenty-four per cent. To what extent this loss in weight is due to the reduction of kidney substance and to what extent it is due to diet and confinement it is impossible to say, as we made no control experiments to elucidate these points.

# THE RELATION OF LESIONS OF THE ADRENAL GLAND TO CHRONIC NEPHRITIS AND TO ARTERIOSCLEROSIS; AN ANATOMICAL STUDY.[1]

By Richard M. Pearce, M. D.

This investigation has for its object the determination, as far as may be possible by anatomical study, of the relation which exists between arteriosclerosis and changes in the adrenal gland on the one hand, and between chronic interstitial nephritis and adrenal lesions on the other.

The problem is of considerable general interest at the present moment in view of the numerous recent publications of French clinicians on this subject and has attracted my attention in connection with a recent critical study of the theory of chemical correlation as applied to the kidney.[2] It would appear natural, in view of our knowledge of the pressor effect of adrenalin and of the experimental lesions produced in the rabbit by this substance, as well as of our knowledge of the frequent association of hypertension with chronic interstitial nephritis and arteriosclerosis, to associate both the renal and arterial disturbances with some alteration of the adrenal. These suggestive facts, taken in connection with the rapidly accumulating evidence of intimate chemical correlation between widely separated organs, renders the problem an exceedingly interesting and suggestive one.

Within the past three years French investigators, led by Vaquez, have contributed a large mass of literature which indicates that localized or diffuse hyperplasia of the adrenal is commonly associated, when the disease does not run too rapid a course, with contracted kidney and arteriosclerosis. The hyperplasia is considered as an indication of hyperactivity of the antitoxic and angiotonic functions of the gland, what we might call perhaps hyperadrenalism.

The literature of this subject is now so voluminous that it would be unwise to review it completely, especially as the anatomical studies have been recently very completely collected and

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[1] Work aided by a grant from the Rockefeller Institute for Medical Research. Published also in *Jour. Exper. Med.*, 1908, x, 735.

[2] Pearce, R. M., The Theory of Chemical Correlation as Applied to the Pathology of the Kidney. Annual address before the Philadelphia Pathological Society, April 23, 1908.

described by Rose,[3] and the somewhat scanty and not very convincing experimental studies have been similarly treated by Darré.[4] To indicate, however, the observations upon which this theory is based a portion of the earlier literature should be given briefly:

The first case described by Vaquez was one of adenoma of the cortex of the adrenal associated with a contracted kidney. Josué described three instances of diffuse arteriosclerosis with hypertrophy of the adrenal. Aubertin and Ambard studied eight cases in which there was contracted kidney and found fatty adenoma in three, diffuse hyperplasia in four and in the remaining case with a rapid clinical course a normal adrenal. Lemaire in a single instance, and Froin and Rivet in six out of seven cases of nephritis found adenomata or nodular hyperplasia; the remaining patient, in whom the rise in blood pressure was slight, had a normal adrenal. Menetrier found two adenomata in seven patients with contracted kidney. These figures indicate the frequency with which pathological changes have been described in the adrenals in association with renal and vascular lesions. There are many negative findings however and the frequency of similar lesions with diseases other than those of the kidney and vascular system have not been sufficiently investigated. On the other hand Landau[5] who has examined the adrenals of sixteen individuals, suffering from general arteriosclerosis between the ages of forty-nine and ninety-six years found no changes which might not be ascribed to the effect on the gland of arteriosclerosis of the vessels of the adrenal itself.

In the hope of throwing more light on the subject by purely anatomical studies I have examined the autopsy records of the Bender Laboratory and have attempted to determine the relation of vascular and nephritic lesions to changes in the adrenal. Attention has been paid also to the occurrence of hyperplasia of the adrenal in association with conditions other than chronic vascular or renal disease.

It has not been an easy matter in all instances, on account of the slighter variations so common in the adrenal, to establish a dividing line between a "normal picture" and the changes in the gland considered by the French writers to be characteristic of chronic interstitial nephritis. An arbitrary normal standard was finally established by comparing the descriptions of several histologists with sections of the adrenal of twelve individuals

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[3] Rose, F., Blutdrucksteigerung, Schrumpfniere und Nebennieren, *Med. Klinik*, 1907, iii, 1405.

[4] Darré, H., De l'influence des altérations du rein sur les glandes surrénales, Paris, 1907.

[5] Landau, H., Ueber die anatomischen Veränderungen in den Nebennieren bei Arteriosklerose, *Zeitschr. f. klin. Med.*, 1907, lxiv, 227.

between the ages of forty and fifty-six years who had met death by violence and were free from chronic disease of any kind, and whose glands were therefore presumably normal for the ages given. The validity of the establishment of this normal picture was further strengthened by the study of glands of forty-six individuals under thirty years of age dying as the result of various acute infectious diseases. In this way the more acute degenerative changes were controlled.

On the other hand the descriptions of Aubertin and Ambard[6] and of Vaquez and Aubertin[7] have been taken as depicting accurately the changes deemed by the French writers to be characteristic of chronic interstitial nephritis with hypertension. Their histological descriptions may be summarized as follows: The earliest lesion is a "non-fatty" nodule of the glomerular zone involving to some extent the fascicular zone. This change may be found in other conditions, but is more marked in chronic interstitial nephritis. Another early appearance is a "fatty" nodule well limited and isolated in the midst of normal cells and seen especially in the fascicular zone. The latter may sometimes be very numerous and not sharply limited. The final stage is a *hyperplasia adenomatosa totale* with definite increase in the weight of the gland. A true macroscopic adenoma of the adrenal they state to be of no significance, unless associated with diffuse hyperplasia. It differs from the so-called adenoma of nephritis in that the latter is a more marked or accentuated local manifestation of a diffuse process, while the ordinary macroscopic adenoma develops in an otherwise normal gland.

It must be here stated that these writers have never limited these lesions to the adrenal of chronic interstitial nephritis but have said, that if individuals of very advanced age are eliminated, the lesions are found in nineteen of twenty cases of the interstitial type of nephritis and but once in twenty cases of the parenchymatous type, or in other diseases than interstitial nephritis. They do insist, however, that these lesions are always accompanied by hypertension except in those cases of chronic nephritis running a very rapid course.

The material of the present study consists of 163 adrenals

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[6] Aubertin, C., and Ambard, L., Lésions des capsules surrénales dans les néphrites avec hypertension, *Bull. et mem. d. l. soc. med. h. hôp. d. Paris*, 1904, xxi, 175.

[7] Vaquez and Aubertin, C., Sur l'hyperplasie surrénale des néphrites hypertensives, *ibid.*, 1905, xxii, 705.

which have been divided into groups according to the ages of the individual and the presence or absence of chronic renal and vascular lesions. They were selected from a group of 1,200 autopsies and include all sections of the adrenal which pass through the center of the entire gland and are well preserved and well stained. They are therefore representative of the lesions occurring in the average run of autopsy material. In no case, however, have we notes of the blood pressure during life. For this reason the study of material of this kind is not comparable, strictly speaking, to the studies of the French investigators as the latter, for the most part, used only material from individuals who during life showed definite hypertension. The purely anatomical studies here presented are, however, of value as control observations and form a basis for a detailed study, now in progress, of the adrenal from individuals exhibiting hypertension clinically.

*Group I. Normal Glands.*—This group includes twelve glands from individuals between forty and fifty years of age (average forty-four years) who met sudden death from some form of violence. They are taken as normal controls.

*Group II. Glands from Individuals under Thirty Years of Age Dying of Infectious Diseases.*—This group includes forty-seven glands of which fourteen are from infants and sixteen from children. They were taken as controls of the acute degenerative or other lesions which might be caused by infection. The diseases represented are diphtheria, typhoid fever, tuberculosis and noma, acute infections of the respiratory system, and diseases of the gastro-intestinal tract, middle ear, and uterus. In only eight examples could departures from the normal structure be found. These occurred in three glands of general tuberculosis, in two of typhoid fever, and one gland each of diphtheria, pelvic abscess and septic endometritis. All were in individuals over twenty years of age. In one gland of the tuberculosis group, a diffuse hyperplasia of the fascicular zone with the characteristic spongy appearance, and in another a very definite nodular hyperplasia of the glomerular zone occurred; in two excessive pigmentation and in all a hyperplasia of the medulla existed. In one also a slight diffuse increase of connective tissue was present and in another some round cell infiltration. In the case of acute septic endometritis a very definite hyperplasia of the medulla with round cell infiltration existed. In one gland from a case of typhoid fever were noted focal necroses with extensive leuco-

cytic infiltration and in the other multiple nodular hyperplasia of the glomerular and fascicular zones and diffuse hyperplasia of the medulla. In the glands from cases of diphtheria and pelvic abscess nodular adenomata were also present with more or less diffuse " fatty " changes. In connection with the changes in the adrenals of tuberculosis individuals here described it is noteworthy that Aubertin and Clunet[8] have described hyperplasia of the medulla in five cases of tuberculosis.

*Group III. Glands from Individuals Over Thirty Years of Age, Free of Chronic Vascular and Renal Disease.*—This group includes nineteen glands from individuals between thirty-one and fifty-seven years of age (average forty-four years). They are to be regarded as controls for the glands derived from individuals of the arteriosclerotic period. Eight showed no adenomatous changes, while in eleven were found the changes described by Vaquez and Aubertin. The hyperplasia was nodular in eight, diffuse in three and combined in two; in three of the nodular variety the lesion was of the " fatty " type. Increase of connective tissue was found in three glands from cases of syphilis, tuberculosis and cancer, respectively, with, in the first, considerable round cell infiltration. Excessive pigmentation was present in two glands of chronic mitral endocarditis. Hyperplasia of the medulla occurred in two instances in association with syphilis and chronic mitral disease, an association which has also been noted by Aubertin and Clunet.

*Group IV. Glands from Individuals Over Thirty Years of Age, with Contracted Kidney, Arteriosclerosis and Heart Hypertrophy.*—This group has been very carefully selected and comprises twenty-four glands from individuals who suffered from typical chronic nephritis of the interstitial type (contracted kidney) associated with well-marked general arteriosclerosis, involving the aorta or its larger branches, and with hypertrophy of the left ventricle (in four instances both ventricles) of the heart. That is, it represents the anatomical material corresponding to the typical clinical features of chronic vascular and renal disease with which hypertension is usually associated. The ages varied from thirty-eight to eighty-seven years (average, fifty-nine years).

Only one of these glands could be considered absolutely nor-

[8] Aubertin, C., et Clunet, J., Hypertrophie cardiaque et hyperplaise médullaire des surrénales, *C. r. Soc. de Biol.*, 1907, lxiii, 505.

mal. Sixteen showed changes which must be considered as the result of the effect on the gland of the arteriosclerotic changes in its own vessels. These changes are similar to those found in the kidney, pancreas and other organs when their vessels are altered by arteriosclerosis. The vessels of the medulla and capsule show fibrous and hyaline thickening with diminution of lumen, the capsule is thickened and both cortex and medulla show various grades of connective tissue increase and round cell infiltration.

In all instances, in addition to these productive changes, certain lesions described by the French writers were present to some degree, and most frequently the diffuse hyperplasia combined with simple nodules of either the "fatty" or "non-fatty" type.

Similar hyperplastic lesions were found in the seven glands in which evident fibrous and local vascular changes were absent, though in three of them, it should be noted, round cell infiltration was a prominent condition.

In six glands of this group a definite hyperplasia of the medulla was apparent, and in two pigmentation was very marked; in almost all the glands it was greater than normal.

The relation of the adenomatous changes to the local lesions due to arteriosclerosis, in the sixteen glands first described, might be explained as compensatory to gland injury and analogous to the "multiple nodular hyperplasia" seen in the liver in cirrhosis and in repair of acute yellow atrophy or after other destructive lesions. This explanation cannot on the other hand be applied to the simple hyperplasia observed in the seven glands without connective tissue proliferation. The hyperplasia, however, is no more frequent in these glands than in Groups II and III in which chronic vascular and renal lesions do not come into question.

*Group V. Arteriosclerosis Associated with Chronic Nephritis of the Parenchymatous Type.*—This group includes thirteen glands from individuals who showed arteriosclerosis of the same grade as the previous group, but in whom chronic parenchymatous nephritis instead of the interstitial type existed. This material was very carefully selected in order to exclude the latter and to include examples of general vascular lesions of the same degree as in the latter disease. The ages varied from thirty-eight to eighty years (average, fifty-seven years).

Of these glands two were normal, five showed vascular and connective tissue lesions of the character seen in Group IV, associated in three with hyperplasia, and six showed hyperplasia only.

The conditions therefore are not essentially different from those of the previous group and do not support the view of the greater importance of chronic interstitial nephritis as productive of hyperplasia of the adrenal.

*Group VI. Arteriosclerosis without Chronic Nephritis.*—This group comprises sixteen glands obtained from individuals with well-marked arteriosclerosis of the aorta and larger vessels but without chronic nephritis of any type. The fatalities include various infections and the chronic diseases common to the latter half of life. The ages vary from thirty-five to seventy-four years (average, fifty years).

Of the sixteen glands, ten showed the vascular and connective tissue changes previously described as characteristic of the arteriosclerotic gland. In all but three of these, adenomatous lesions also exist. Four exhibited hyperplasia only, and two were normal.

These observations compared with those made of Groups IV and V indicate that the constant factor in producing the hyperplasia is arteriosclerosis; and hyperplasia occurs indifferently in chronic nephritis of the parenchymatous type, of the interstitial type, and in absence of chronic nephritis of all types.

*Group VII. Chronic Nephritis without Arteriosclerosis.*—This group includes twelve glands obtained from individuals without arteriosclerosis but who had definite chronic nephritis, which in ten was of the parenchymatous and in two of the interstitial type. Incidentally this group bears on the question of the frequency with which chronic interstitial nephritis occurs in the absence of arteriosclerosis. The ages ranged from twenty-three to fifty years (average, thirty-six years).

Five of the glands were normal. Two, from individuals with pneumonia and gangrene of the leg, respectively, showed diffuse hyperplasia with discrete non-fatty nodules; and four showed nodular adenomata only. The remaining gland from an individual with tertiary syphilis presented very extensive round cell infiltration of the medulla, but no hyperplasia. Extensive round cell infiltration was present also in the gland from an individual

with gangrene of the leg; and slight infiltration in one of chronic mitral disease. In no instance was an increase of connective tissue present. Of the two cases of interstitial nephritis one gland showed nodular hyperplasia and the other none.

These findings are in accord with those previously presented as far as the influence of chronic nephritis of the interstitial type is concerned and indicate, as do the findings in Groups II and III, the relative frequency of hyperplasia of the adrenal in the absence of arteriosclerosis.

*Group VIII. Does Hyperplasia Occur in Chronic Destructive Lesions of the Adrenal?*—In another section (Group IV) the statement has been made that the adenomatous hyperplasia of the adrenal, in chronic productive lesions of the gland, might be in part a compensatory process analogous to the nodular hyperplasia occurring in the liver of cirrhosis. An attempt has been made to determine whether such a hyperplasia occurs in the persisting tissue of adrenals which are the seat of extensive chronic destructive processes. Two glands invaded by carcinoma, two with amyloid and ten with tuberculosis have been studied. In two of these, cancer and amyloid respectively, a nodular hyperplasia of the "non-fatty" type was demonstrable in the glomerular and fascicular zones, while in four of the tuberculous organs areas were found which could be interpreted only as the result of hyperplasia. These masses do not show the normal architecture of the adrenal, but are atypical and consist of very large pale vacuolated cells usually containing considerable pigment. The masses are located, frequently, at a distance from the tuberculous lesions and encased in connective tissue. In one gland in which considerable portions of the organ remained intact a diffuse hyperplasia was present.

These findings support the theory of a compensatory nodular hyperplasia of the adrenal, and suggest a possible explanation of the relatively constant hyperplasia of the arteriosclerotic gland.

*Group IX. Macroscopic Adenoma of the Adrenal and Kidney (Hypernephroma).*—Although Vaquez and Aubertin state that macroscopic adenomata are of no importance in the production of hypertension or in the relation of the adrenal to chronic nephritis, I have grouped these cases in order to present the subject in complete form.

Three hypernephromata of the kidney and three adenomata of

the adrenal were available for study. One of the latter was from an individual of thirty-eight years of age who was free from renal and cardio-vascular lesions. The other five were all from individuals between fifty and sixty years of age. Chronic nephritis of the parenchymatous type was present in two and of the interstitial type in two individuals; and the kidney was normal in one individual. In three of the cases a well-marked general arteriosclerosis and in two slight lesions of the aorta and coronary arteries existed. Heart hypertrophy was absent in all.

Macroscopic adrenal adenomata would therefore appear to have no definite relation to chronic interstitial nephritis; whether they bear any relation to arteriosclerosis cannot be concluded from the small number of examples in my studies.

## SUMMARY.

Vaquez and Aubertin advance three theories in explanation of the adrenal hyperplasia; first, that it may not be the cause of hypertension but "an antitoxic hyperplasia" caused by the retained products of metabolism which may be responsible also for the hypertension; second, that it may be the cause of hypertension but secondary to the renal lesion; third, that it may be the cause of hypertension but may antedate the renal lesion or be entirely independent of it. They, as well as other French writers, insist that this hyperplasia is almost constantly associated with chronic nephritis of the interstitial type and it is seldom found with the parenchymatous type of nephritis, or with other lesions.

Hyperplasia of the adrenal, as far as my material enables one to judge, does not occur during the first and second decades. In the third decade it is relatively frequent in the absence of chronic arterial and renal disease but reaches the maximum in association with such disease after the fourth decade. It is an almost constant lesion in arteriosclerosis associated with chronic interstitial nephritis and left-sided heart hypertrophy, but occurs with almost equal frequency in arteriosclerosis with chronic nephritis of the parenchymatous type. It is a relatively frequent lesion of arteriosclerosis without chronic nephritis and of the latter without arteriosclerosis also. As the result of this analysis one is lead to the view that while hyperplasia of the adrenal is a very frequent concomitant of chronic renal and arterial disease it is not exclusively a feature of either type of nephritis or yet of chronic

vascular disease; but it probably represents the effect of some factor operating in that period of life in which chronic renal and arterial affections are most frequent.

Worthy of special emphasis is the observation that the characteristic lesion of an adrenal, the seat of local arteriosclerosis, is of the type of the chronic productive inflammation seen in arteriosclerosis of the pancreas and kidney; that is, thickening of the vessels, increase of connective tissue and round cell infiltration. Associated with these changes is a hyperplasia which is very constant, and which may be, in part, of the nature of a compensatory hyperplasia similar to that seen in the liver of cirrhosis and acute yellow atrophy. A hyperplasia of this type, as has been shown, may occur in destructive lesions of the gland. This, however, does not explain hyperplasia in the absence of local vascular changes which fact is, possibly, as suggested by Landau, evidence, not of a correlation between kidney and adrenal, but of a vicarious hypertrophy depending upon lesions of some other organ of the body than the kidney, possibly some other ductless gland, affected by arteriosclerosis or other disease.

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# CLINICAL NOTES AND PHYSICOCHEMICAL STUDY OF SALT ELIMINATION IN THE URINE OF AN INDIVIDUAL WITH GENERAL EDEMA OF OBSCURE ORIGIN, FOLLOWED BY CURE.*

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AND
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This case of general edema of obscure origin without evidence of kidney lesion is reported in part on account of its interest clinically and in part because of the unusual importance of the results of the physical and chemical examination of urine. Incidentally, therapeutic observations difficult of interpretation but apparently of some value are also presented.

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* This investigation was pursued under a grant made by the Committee on Scientific Research of the American Medical Association, and is from the Bender Laboratory, Albany, N. Y.

## Clinical Report (A. W. Elting).

*Patient.* G. H. R., aged 45, an experimental chemist by occupation, was first seen in July, 1907, at which time he complained of irritation of the throat, general debility, and inability to concentrate his attention on his work.

*History.* His family and past history were negative, except that for the last ten years most of his time had been spent in a much vitiated atmosphere due to the decomposition at high temperatures of linseed oil, gums, resins and hydrocarbon compounds. These vapors are for the most part acid, readily form metallic salts, and are as a rule irritating to the urinary tract. The patient used alcohol and tobacco moderately and gave an indefinite and improbable history of chancre twenty years ago, with no subsequent luetic manifestations.

*Onset of disease.* He had noticed for several years past that when subjected to the fumes above described he would be troubled by irritation of the urinary tract and of the throat. During the winter of 1903 he first observed an occasional swelling of the palmar surface of the fingers, and about the same time some slight enlargement of the upper part of the abdomen. He also became fatigued on slight exertion and very languid. Moderate doses of blue mass relieved these conditions temporarily. In 1905 the feeling of lassitude became quite constant. He would arise in the morning feeling fairly well, but on moving about would soon become tired. He was also troubled with drowsiness during the day, sometimes falling asleep at his desk. Nervousness was an almost constant symptom, for which no definite cause could be assigned, and he suffered from slight lapses of memory and was at times much troubled with a cough. On retiring at night he would fall asleep for a short time and then awaken with a nervous start which would be followed by insomnia for the rest of the night. In April, 1907, he noticed some puffiness about the lower eyelids, which later extended to the temporal region. About this time he found that he could not lie with his head low in bed without experiencing a sensation in the ears similar to that caused by water. When the patient was seen in July there was very slight puffiness about the lower eyelids and face, with moderate chronic laryngitis, but no other evidence of physical disorder. The usual urine examination at that time was negative. In August and September the edema increased somewhat in the face and extended to the neck, chest, upper part of the back and the upper extremities. He was seen again about October 1, 1907, at which time the edema in the above-mentioned localities was quite pronounced and there was slight dyspnea and cyanosis. A suspicion of mediastinal tumor was entertained, but absolutely no physical evidence of such a condition could be detected. The urine examination was negative (chlorid elimination was not tested). The patient was advised to give up his work for a time and go to his home in Pennsylvania. This he did. About this time the cough became much aggravated and more paroxysmal in character, accompanied by vertigo and semi-unconsciousness for a few seconds. The patient also found it impossible to lie flat in bed because of dyspnea and was compelled to sleep propped up.

About October 15, 1907, the attacks of coughing became much more severe and breathing more labored; the expectoration was slight in amount and consisted of a frothy mucus. The edema gradually extended downward over the trunk, then involved the scrotum and finally, but gradually, the legs. The patient's condition became desperate because of the attacks of coughing, the dyspnea and the cyanosis, and with much difficulty he was brought from his home in Pennsylvania to St. Peter's Hospital, where he was admitted October 30, 1907.

*Condition on Admission.* This was alarming. Dyspnea was very marked and increased on the slightest exertion. Cyanosis was pronounced and there was a most extensive edema of the face, neck, chest, back and upper extremities, less marked over the lower part of the trunk, the scrotum and lower extremities. The patient suffered from frequent paroxysms of coughing, and at these times he would have mild convulsive seizures and become unconscious for a few seconds. It was impossible for the patient to lie down and he sat propped up in a chair. The edema was of a firm character and seemed to involve the muscles and deeper tissues rather than the subcutaneous tissues.

*Physical Examination.* There was absolutely no evidence of any accumulation of fluid in the serous cavities. Examination of the heart and lungs was negative except for sibilant, sonorous and some small moist râles. The abdominal viscera were normal. The temperature was subnormal and the pulse about 100. The quantity of urine was much reduced, varying from 300 to 500 cubic centimeters in twenty-four hours. The patient was extremely nervous and slept but little. His appetite was poor. The blood examination was negative. Satisfactory radiographs of the thorax were obtained, but these were normal and there was no evidence whatever of mediastinal tumor or aneurism. Nervousness was a constant and pronounced symptom, as was insomnia. The patient's condition for the first week after admission to the hospital was most desperate, chiefly because of the attacks of dyspnea and coughing, during which he would frequently lose consciousness. The appetite was very poor.

*Treatment.* On admission to the hospital the patient was given large quantities of liquids and iodid of potash in increasing doses.

November 10: The administration of acetate of potash and infusion of digitalis apparently caused some increase in the volume of urine.

November 12: A steam bath was given without any evident increase in the perspiration, the patient's skin having been unusually dry at all times and perspiration evidently very much below the normal. Heroin in one-twelfth grain doses seemed to be quite effectual in relieving the cough. He was unable to lie down and spent all his time propped up in a chair.

November 21: He suffered a very severe attack of dyspnea and became unconscious. Oxygen, amyl nitrite and nitroglycerin were freely used and resuscitated him. The patient was given an ounce of magnesium sulphate every other morning and the stools were quite watery in consequence.

November 25: He was placed on as nearly a salt-free diet as could be

secured, and from this date until February 1, 1908, a somewhat complete quantitative examination of the urine was performed daily, the results of which follow the clinical report.

November 27: The diuretic mixture was discontinued.

December 8: The patient was given potassium nitrate in fifteen grain doses every three hours. As the result of the administration of this the volume of the urine increased until on December 12 it amounted to 3,225 cubic centimeters (Table 2). Coincident with this there was a marked diminution in the edema and a decided improvement in the general condition. Attempts were also made to give the patient subcutaneous infusions of sterile water, but these had to be abandoned because of the great pain they occasioned. He was, however, given twelve ounces of sterile water by rectum each day. The potassium nitrate was discontinued on December 12 and was resumed on December 14, with but little effect on the volume of the urine, but the chlorid output was markedly increased.

December 13: The patient was given an artificial Nauheim bath and this was repeated on two successive days with apparently a marked softening and lessening of the edema and a decided improvement in the cough and dyspnea.

December 27: Another series of artificial Nauheim baths was given on alternate days with a lessening of the edema. About this time the patient was able to assume a somewhat reclining posture at night and gradually as his condition improved his position in sleeping approached more and more the horizontal. About January 1, 1908, the patient began to take a few steps, but was easily exhausted and was very weak.

January 4: He experienced a very severe attack of coughing and dyspnea and the edema increased slightly.

January 20: A small fixed quantity of salt, 5 grams per diem, was added to the food, but the patient objected strongly, stating that it nauseated him. Gradually, however, he became accustomed to it and the dislike for salt disappeared.

*Clinical Course.* The course of the edema was variable; as a rule, when the urine increased the edema decreased. The edema first disappeared from the chest, then the face and the back, the legs and forearms being the last to yield. Gradually the patient was encouraged to take more exercise and to get out of doors for a short time each day. This seemed to exert a very beneficial effect on the edema, and the dyspnea and coughing seemed to vary with the edema.

*Later Course.* The patient left the hospital on February 1, 1908. At this time there was still some edema in the forearms and legs, and some dyspnea, which increased on exertion. His general condition was fairly good. His strength was greatly improved and he was voiding about a normal amount of urine. He was then able to sleep in the horizontal position and was decidedly less nervous. The week following discharge from the hospital was spent at his home. The urine varied from 600 to 900 cubic centimeters in twenty-four hours, and the patient's appetite was somewhat improved. At the end of one week he started for Bermuda. The sea air increased the cough and expectoration somewhat, but the

breathing was less labored. Shortly after arriving in Bermuda he was taken with a chill, followed by a fever which lasted for a day or two. He had great thirst and drank large quantities of water. At this time he had massage each day for three or four days and the urine rapidly increased to 3,000 cubic centimeters in twenty-four hours. He was on a light diet with large quantities of fruit, especially oranges. From Bermuda he went to Nassau, where the temperature was higher and where he was able to take more exercise and felt much better. The urine ranged from 1,500 to 1,800 cubic centimeters daily. Early in March the patient returned to Pennsylvania, much improved in every way, the edema less marked, his strength greatly improved and with but little dyspnea on exertion. When the patient was seen June 10, 1908, there was but slight edema, traces being found in the neck, forearms, calves and about the ankles; this, as previously, seemed to be muscular rather than subcutaneous. The edema appeared to be more or less transitory. Sleeping in the sitting posture increased the edema of the legs, while sleeping in the recumbent posture increased it in the face, neck and arms. Exercise rapidly lessened the edema. The general health was good and the appetite was normal. Since the middle of February the patient has taken no medicine, except one ounce of Rochelle salts every other day and an occasional eight-grain blue mass pill. The cough has entirely ceased, except on severe exertion, and when it does occur it is without the previous spasmodic character. The patient has resumed part of his duties.

### Examination of the Urine (H. C. Jackson)

As stated in the clinical notes, a preliminary examination of a twenty-four-hour specimen of the urine of November 21, 1907, showed a small volume of 340 cubic centimeters with a normal specific gravity of 1025. Qualitative tests indicated that no pathologic substances were present. The first indication of an abnormality was shown on testing for chlorids by the addition of silver nitrate to the urine made acid with nitric acid. The slightest precipitate, amountng to only an opalescence, resulted, indicating a practical absence of chlorids. At this time the patient was living on an ordinary hospital diet. Orders were immediately given for the preparation of a special diet which was as nearly free from salts, especially sodium chlorid, as could be obtained. Fluids were given in as large quantities as possible. The regular examination and analysis of twenty-four-hour samples of urine began on November 24, 1907, and continued until February 1, 1908, in all ten weeks. The analysis consisted in the determination of the volume, specific gravity, total nitrogen according to Kjeldahl's method, chlorids by Volhard's indirect method, phosphates by titration with uranium nitrate and the depression of the freezing point $\Delta$ by means of the ordinary Beckmann apparatus. At various times during the period of observation the ammonia and uric acid were estimated and were found to be normal in amount and in percentage of total nitrogen. At no time could albumin or casts be detected. The whole time of observation has been divided into four periods of from ten to

thirteen days each. The first represents the time during the change from the normal to salt-free diet and includes nine days on the latter diet. The second follows the first, after a lapse of three days, and consists of the days just before, during and after the administration of potassium nitrate during a salt-free diet. The third, with three days' interval, represents the effect of the artificial Nauheim baths on the patient, who was still on the same diet. The fourth and last period begins after a lapse of eleven days, during which time the condition of the patient was steadily improving on the salt-free diet and continues during the period when an approximately normal diet was resumed. The patient, during the period of forced restraint from salt, developed a decided dislike to the condiment and it was only with considerable difficulty, by persuasion and by placing the salt in the food during preparation, that he was induced to take a definite amount (five grams) each day during the final period of normal diet. The tables for the four periods follow, with the discussion of the important points brought out in each:

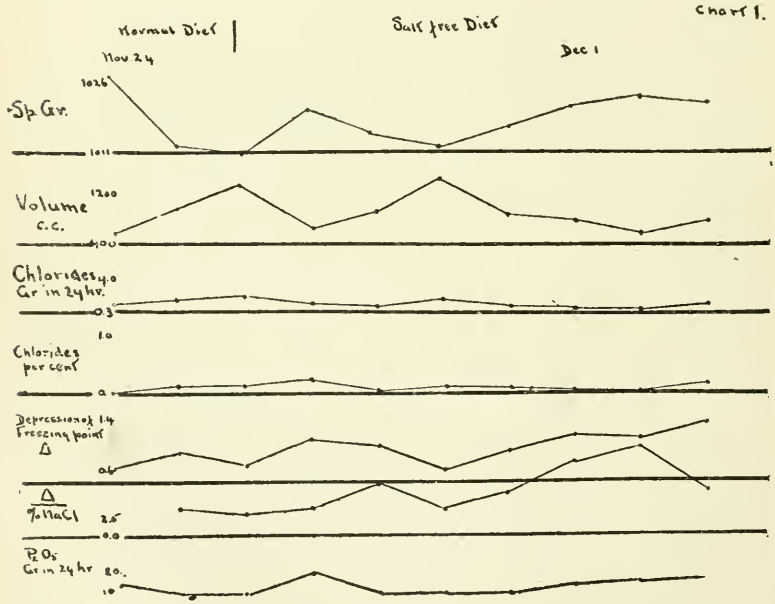
## Period I.

Previous to November 24, 1907, the daily volume of the urine averaged from 150 to 300 cubic centimeters and the administration of digitalis and potassium acetate and digitalin had little effect as regards the volume of output. It will be seen in the clinical report that the administration of water on the salt-free diet benefited this condition somewhat, as the volume rose at times to almost the normal with the specific gravity only a little below the average. The absolute chlorid elimination averaged almost two grams on the normal diet. This amount fell gradually during the salt privation, although at times it reached nearly to the normal diet figures for this individual. It is interesting to note that the chlorid percentage output did not vary with the absolute output of chlorin or with the elimination of water, but with some few exceptional days remained between 0.16 and 0.32 per cent. (see also the first two days in Table 2). This fact seemed to indicate that during the period of hydremic plethora following the ingestion of larger quantities of water the blood was able quickly to resume its then normal osmotic concentration by drawing from the salt of the tissues, and that the filtrate passing through the glomerulus was constant in composition and was normally concentrated in the convoluted tubules. On the other hand, the depression of the freezing point runs parallel with the specific gravity and inversely as the volume and in no relation to the chlorid output, absolute or percentage. Evidently, then, the nitrogenous constituents (urea, uric acid, kreatinin, etc.) were being eliminated in normal manner and variations in their output and percentage relations were causing the ordinary changes in specific gravity and depression of the freezing point. Neglecting the abnormally low chlorid elimination, and hence low specific gravity in relation to the volume of urine excreted, the other physical factors reacted perfectly normally. Thus no evidence could be obtained in any way, at any stage of the investigation, that the renal function was affected in the slightest degree. The phosphoric acid elimination was somewhat below the average, but,

TABLE 1.

| Date | Vol. cc. | Sp. Gr. 1.0— | Chlorids | | $P_2O_5$ Grams | Δ | Δ / NaCl | |
|---|---|---|---|---|---|---|---|---|
| | | | Grams | Per Cent. | | | | |
| 11/24 | 415 | 27 | 1.34 | 0.32 | 1.42 | .... | .... | Normal diet. |
| 11/25 | 800 | 13 | 1.92 | 0.21 | 1.07 | 0.87 | 4.1 | Normal diet. |
| 11/26 | 1150 | 11 | 2.53 | 0.22 | 1.10 | 0.665 | 3.2 | Salt-free diet. |
| 11/27 | 515 | 20 | 1.43 | 0.27 | 1.81 | 1.085 | 4.0 | Salt-free diet. |
| 11/28 | 700 | 15 | 0.84 | 0.12 | 1.14 | 0.950 | 7.9 | Salt-free diet. |
| 11/29 | 1220 | 12 | 1.95 | 0.16 | 1.16 | 0.545 | 3.4 | Salt-free diet. |
| 11/30 | 650 | 16 | 0.91 | 0.14 | 1.21 | 0.865 | 6.1 | Salt-free diet. |
| 12/1 | 535 | 20 | 0.53 | 0.10 | 1.47 | 1.100 | 11.0 | Salt-free diet. |
| 12/2 | ... | .. | .... | .... | .... | ..... | .... | |
| 12/3 | 365 | 22 | 0.29 | 0.08 | 0.66 | 1.090 | 13.6 | Salt-free diet. |
| 12/4 | 540 | 21 | 1.08 | 0.20 | 1.49 | 1.280 | 6.4 | Salt-free diet. |

CHART OF TABLE 1.



when considered in connection with the diet and amount of nitrogen excreted, it was considerably above the normal. We believe that the high $\frac{\Delta}{NaCl}$ factor was without value as an indication of any disturbed circulatory, cardiac or renal lesion (Korányi[1]), since this factor paralleled almost exactly the concentration of the urine as indicated by the specific gravity and depression of the freezing point.

### Period II.

On December 9, 1907, the administration of potassium nitrate in doses of fifteen grains every three hours was begun and continued for three days followed after one day's intermission by a second period of three days with similar treatment. During all this time the salt privation was continued. The nitrate was selected[2] since, according to Sollmann, sodium nitrate stands as one of the few diuretics which occasions an increased percentage output of sodium chlorid coincident to the diuresis. The explanation offered by Sollmann is that the nitrate replaces the sodium chlorid in the tissues, thus throwing the latter substance out of combination and allowing of its excretion. In view of the relatively small amounts of potassium nitrate administered and the tremendous elimination of sodium chlorid which it caused, such an explanation seems hardly probable or even possible. As the table indicates, the potassium nitrate during the first period of ingestion caused a diuresis during which the volume increased to 3,225 cubic centimeters on the last day; the specific gravity was not markedly lowered owing to the fact that the percentage output of sodium chlorid was doubled; on the last day the absolute excretion of chlorids reached seventeen and four-tenths grams. The $\Delta$ remained unchanged; the increased concentration of the chlorids being counterbalanced by the decreased percentage elimination of the other soluble constituents of the urine, as is normally the case during diuresis. This again supports the view that the increased percentage output of chlorids is due to an increased ionic concentration of the blood in terms of this ion. The factor $\frac{\Delta}{NaCl}$ was reduced to the normal figures during this and the subsequent potassium nitrate period. The phosphoric acid output was somewhat increased in absolute amount, but the percentage figures were lowered during the diuresis. The second period of potassium nitrate ingestion differed slightly from the former in that the diuresis was not very evident; the increased chlorid output was quite pronounced, although not so marked as in the first period. This condition caused the $\Delta$ to increase and percentage of chlorid elimination to rise on one day

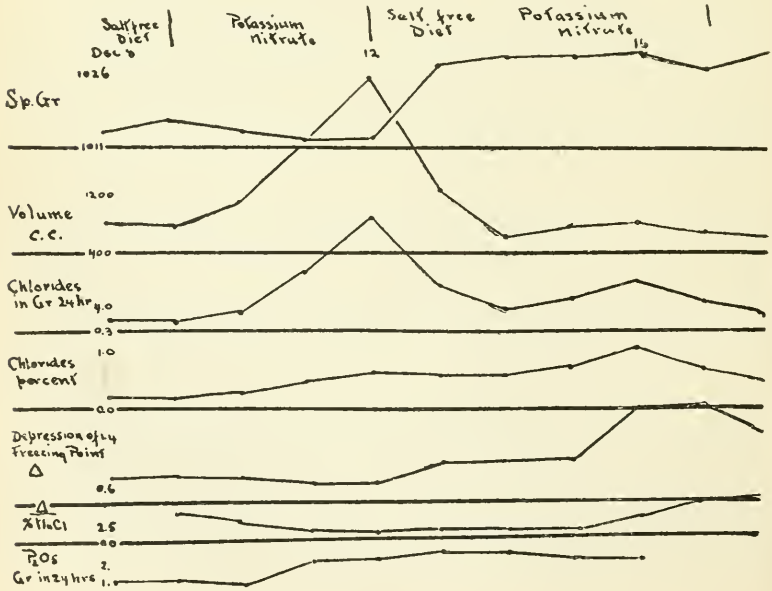
[1] v. Korányi, A.: Physiologische und klinische Untersuchungen uber den osmotischen Druck thierischen Flüssigkeiten *Ztschr. f. klin. Med.*, 1897, xxxiii, i; 1898, xxxiv, i.

[2] This substance was employed following the work of Sollmann (The Effect of Diuretics, Nephritic Poisons and Other Agencies on the Chlorids of the Urine, *Am. Jour. Physiol.*, 1903, ix, 423), who showed the diuretic effect of sodium nitrate and its power to increase both the absolute and percentage elimination of chlorids. The potassium salt was chosen in the hope that the well-known effect of these salts in replacing sodium compounds in the body (Bunge) might aid in producing a favorable result.

TABLE 2.

| Date | Vol. cc. | Sp. Gr. 1.0— | Chlorids | | $P_2O_5$ Grams | Δ | Δ / NaCl | |
|---|---|---|---|---|---|---|---|---|
| | | | Grams | Per Cent. | | | | |
| 12 /8 | 850 | 14 | 2.04 | 0.24 | 1.51 | .... | .... | Salt-free diet. |
| 12 /9 | 785 | 16 | 1.41 | 0.18 | 1.48 | 0.800 | 4.4 | Salt-free diet. |
| 12/10 | 1140 | 14 | 2.74 | 0.24 | 1.28 | 0.740 | 3.08 | Pot. nitrate. |
| 12/11 | 2110 | 12 | 8.86 | 0.42 | 2.00 | 0.650 | 1.50 | Pot. nitrate. |
| 12/12 | 3225 | 12 | 17.40 | 0.54 | 2.13 | 0.660 | 1.22 | Pot. nitrate. |
| 12/13 | 1300 | 26 | 6.50 | 0.50 | 2.08 | 0.775 | 1.55 | Salt-free diet. |
| 12/14 | 580 | 30 | 2.72 | 0.47 | 2.24 | ..... | .... | Pot. nitrate. |
| 12/15 | 700 | 28 | 4.06 | 0.58 | 3.42 | 0.875 | 1.50 | Pot. nitrate. |
| 12/16 | 790 | 30 | 6.95 | 0.88 | 2.27 | 1.765 | 2.00 | Pot. nitrate. |
| 12/17 | 610 | 24 | 3.42 | 0.56 | 1.98 | 1.845 | 3.33 | Salt-free diet. |
| 12/18 | 525 | 28 | 2.10 | 0.40 | .... | 1.335 | 5.45 | Salt-free diet. |
| 12/19 | 615 | 20 | 1.48 | 0.24 | .... | 1.470 | 6.12 | Salt-free diet. |

CHART OF TABLE 2.



to almost normal figures. During the six days of drug administration and the two single days following each period, fifty-two and sixty-five hundredths grams of sodium chlorid were excreted, and this during a salt-free diet.

If we consider the weight of the patient at seventy-five kilos and deduct therefrom the proportional fraction of this due to bone, by a simple calculation one can determine that the presence of these fifty-two and six-tenths grams of sodium chlorid in the body before its elimination would have been sufficient to increase the osmotic concentration of the fluids of the whole body equivalent to that of about a one per cent. sodium chlorid solution. This will serve to indicate the extreme state of hypertonicity which must have existed in the fluids of the body before the administration of the potassium nitrate and to which it is believed the edema was due.

This period of somewhat incomplete analytical results covers the time of gradual recovery with continued salt privation. During part of this time, beginning on December 27, 1907, the patient was given a series of artificial Nauheim baths on alternate days, with the intention of stimulating the peripheral circulation. All previous attempts to cause sweating by hot baths, etc., had been fruitless. While the results are hard to explain, they are too evident to admit of doubt as to cause and effect. No change in the volume of urine was noticed, but the increased elimination of chlorids brought the percentage output almost up to normal on December 30 and to one and seven-tenths per cent. on December 28. During the period between January 1 and 12 the effect of abstinence from sodium chlorid became evident in the extreme lowness of the absolute output, amounting on the average to only forty-five one hundredths gram. This can be seen on examination of the first three days, Table 4.

## Period IV.

This table details the results of the commencement and continuance of a somewhat normal diet in which sodium chlorid was not excluded, but during part of which sodium chlorid was administered in five-gram amounts *per diem*. The first ten days in the table are continuous; then follows a lapse of four days, and a subsequent period of three days is added in order to show the effect of the normal diet two weeks after its commencement. Finally, there follows the results of a partial examination of the urine of the same individual on May 19, 1908, or three and one-half months subsequent to the time when the patient left the hospital (February 1, 1908).

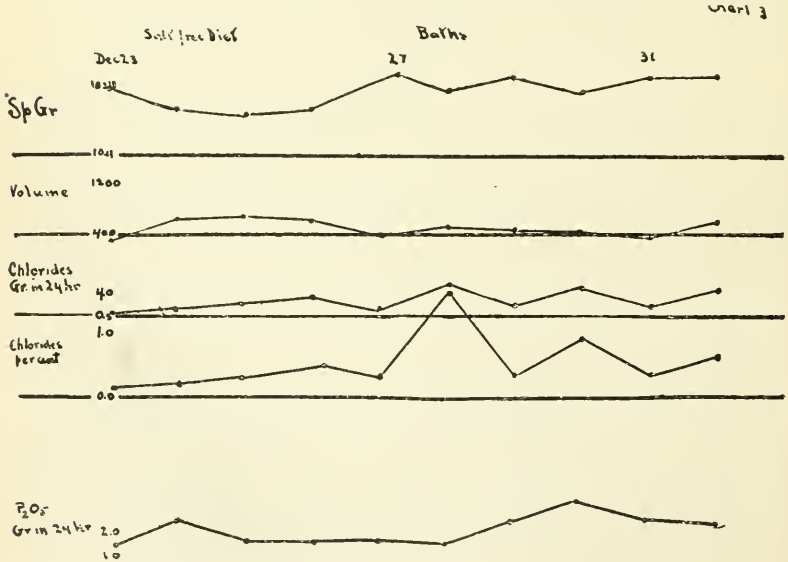
The figures for this period indicate that, while the volume of the urine had not assumed normal figures, the specific gravity was much higher with the same volume than was the case before the treatment began (Table 1). As striking evidence in favor of the view that the edema was set up by chlorid retention, there must be pointed out the tenacity with which the body has retained the chlorids in spite of deprivation of these salts; thus, after about seven weeks of salt-free diet, the body, even at that time, was not in a state of chlorid hunger, since the addition

of five grams of salt to the diet caused the elimination, after three days, of over this amount and within the week following the body was almost in exact sodium chlorid equilibrium.

TABLE 3.

| Date | Vol. cc. | Sp. Gr. 1.0 | Chlorids | | $P_2O_5$ Grams | |
|---|---|---|---|---|---|---|
| | | | Grams | Per Cent. | | |
| 12/23 | 347 | 25 | 0.5 | 0.14 | 1.37 | Salt-free diet. |
| 12/24 | 645 | 20 | 1.2 | 0.19 | 2.16 | Salt-free diet. |
| 12/25 | 705 | 19 | 2.1 | 0.30 | 1.37 | Salt-free diet. |
| 12/26 | 615 | 20 | 3.0 | 0.48 | 1.30 | Salt-free diet. |
| 12/27 | 400 | 27 | 1.2 | 0.30 | 1.25 | Salt-free diet. |
| 12/28 | 525 | 21 | 8.82 | 1.70 | 1.00 | Salt-free diet + Nauheim bath. |
| 12/29 | 475 | 26 | 1.5 | 0.31 | 1.59 | Salt-free diet. |
| 1 /30 | 480 | 23 | 4.2 | 0.88 | 2.19 | Salt-free diet + Nauheim bath. |
| 12/31 | 390 | 26 | 1.4 | 0.35 | 1.40 | Salt-free diet. |
| | 610 | 26 | 3.7 | 0.60 | 1.16 | Salt-free diet + Nauheim bath. |

CHART OF TABLE 3.



That the absolute and percentage output of sodium chlorid have not reached the normal figures is to be attributed to the fact mentioned above, that the patient, on being allowed to resume a normal diet, complained that salt nauseated him and refused to eat foods which tasted at all salty. The $\Delta$ and the factor $\frac{\Delta}{NaCl}$ rapidly assumed normal figures after the establishment of the normal diet and have remained so ever since. The phosphoric acid elimination is now well within normal limits.

On the whole, the examination of the urine the day before the patient left the hospital and three and one-half months after shows it to be practically normal when the character of the diet is taken into consideration.

## DISCUSSION.

It seems evident that the appearance of the edema noticed in this case was accompanied by a diminished elimination of chlorids; whether this was the result of the edema or its cause is difficult to prove, especially on account of the fact that it was impossible to obtain any of the patient's blood for examination and comparison with the urinary findings. In particular cases of edema associated with certain renal lesions the cause is ordinarily attributed to a deficient eliminating power of the kidney for chlorids. At no time before or during the progress of the disease did any evidence of renal deficiency exist. Apparently, with an increased concentration of the blood for chlorids, there followed an augmented output of these ions. It seems reasonable therefore that the discussion of the renal function in this connection may be excluded.

It is impossible at this time to enter into a complete exposition of the various theories which have been advanced to explain salt retention in relation to hydrops. The subject and its literature have been well covered by Georgopulos[3] and by Christian.[4] The principal contention rests on the question whether the salt retention is the cause or the result of the appearance of the hydrops. Strauss,[5] Widal,[6] Halpern[7] and Castaigne,[8] among others,

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[3] Georgopulos: Experimentelle Beiträge zur Frage Nierenwasserucht, *Ztschr. f. klin Med.*, 1906, lx, 411.

[4] Christian, H. A.: Experimental Nephritis, *Boston Med. and Surg. Jour.*, 1908, clviii, 416, 452.

[5] Strauss: Therap. d. Gegenwart, 1902, iv, 444; 1903, v, 193.

[6] Widal: La cure de déchlorination, *Bull. Méd. des Hôp.*, Paris, 1003, xx, 773, 000.

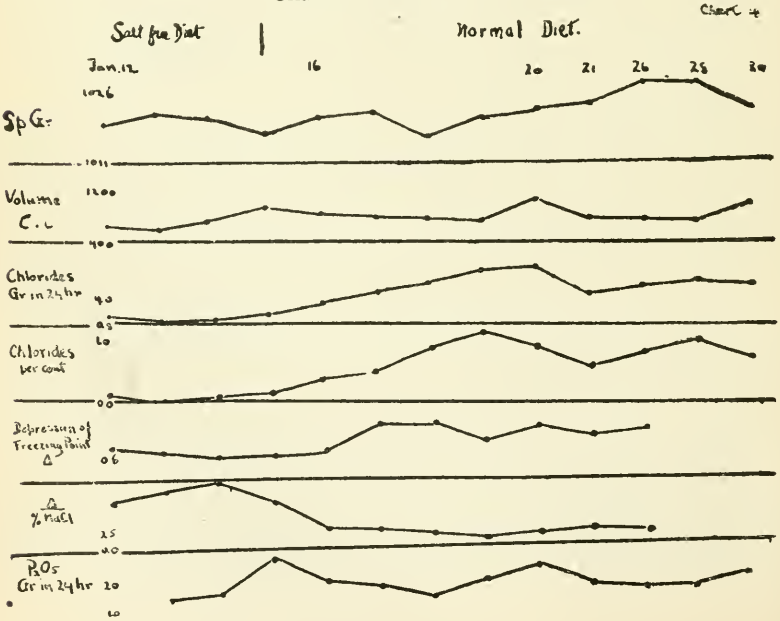
[7] Halpern: Beiträge zur Frage des Verhaltens der Chlorid im Körper, ihre Beziehung zur Oedembildung und ihre Bedeutung fur die Diatetik bei Nephritis. Beitr. z. wissensch. *Med. u. Chem.* (Festschr. f. Salkowski), Berlin, 1904.

[8] Castaigne: Le rôle du reins dans la rétention cholorurée, *Semaine Méd.*, 1903, xxiii, 309; 1905, xxv, 472.

TABLE 4.

| Date | Vol. c.c. | Sp. Gr. 1.10– | Chlorids Grams | Chlorids Per Cent | $P_2O_5$ Grams | △ | △/NaCl | |
|---|---|---|---|---|---|---|---|---|
| 1/12 | 665 | 18 | 1.10 | 0.16 | .... | 1.135 | 7.08 | Salt-free diet. |
| 1/13 | 605 | 20 | 0.38 | 0.06 | 1.47 | ..... | ..... | Salt-free diet. |
| 1/14 | 710 | 19 | 0.48 | 0.09 | 1.64 | 0.975 | 10.80 | Salt-free diet. |
| 1/15 | 935 | 16 | 1.30 | 0.14 | 2.72 | 0.990 | 7.07 | Normal diet. |
| 1/16 | 805 | 19 | 2.86 | 0.35 | 2.09 | 1.080 | 3.08 | Normal diet. |
| 1/17 | 755 | 20 | 4.23 | 0.56 | 1.86 | 1.480 | 2.65 | Normal diet. |
| 1/18 | 715 | 15 | 5.58 | 0.78 | 1.47 | 1.450 | 1.86 | Normal diet + 5 grams NaCl. |
| 1/19 | 675 | 19 | 7.31 | 1.09 | .... | 1.200 | 1.10 | Normal diet + 5 grams NaCl. |
| 1/20 | 975 | 22 | 7.60 | 0.78 | 2.42 | 1.400 | 1.80 | Normal diet + 5 grams NaCl. |
| 1/21 | 695 | 23 | 3.75 | 0.54 | 1.70 | 1.250 | 2.34 | Normal diet + 5 grams NaCl. |
| .... | ..... | .. | .... | .... | .... | ..... | ..... | |
| 1/26 | 665 | 26 | 4.67 | 0.70 | 1.65 | 1.345 | 1.92 | Normal diet + 5 grams NaCl. |
| 1/28 | 660 | 26 | 5.54 | 0.84 | 1.67 | ..... | ..... | Normal diet + 5 grams NaCl. |
| 1/30 | 890 | 21 | 5.01 | 0.56 | 2.22 | ..... | ..... | Normal diet + 5 grams NaCl. |
| .... | ... | .. | .... | .... | .... | ..... | ..... | |
| 19/5 | 1170 | 15 | 7.76 | 0.66 | 2.45 | ..... | ..... | Normal diet. |

CHART OF TABLE 4.



believe that the salt retention in the tissues is primary to the retention of water; the latter observer bases his views on experiments in which saline was injected into normal animals and those with experimental nephritis. The urine in both cases showed no difference. But if sound and diseased animals were bled and saline injected very soon afterwards, the blood of the nephritics contained less salt. The fact that in certain febrile conditions there exists a retention of chlorids without evident renal disturbance is also cited as evidence of the primary nature of the retention. In these cases edema does not necessarily result; and this seems sufficient reason to believe that the factor of permeability of the epithelial lining of the capillaries forms a not unimportant adjunct to the whole process. Müller[9] advances this view and considers that the hydrops is due to an increased permeability of the blood vessels due to certain toxic products in the blood. This conception receives support from Cohnheim and Lichtheim,[10] who showed that subcutaneous edema only followed saline injection when the skin had been irritated in any way, and the results of Magnus with chloroform irritation pointed in the same direction.

In view of the extremely obscure etiology of the case under discussion it would seem to us that a combination of Müller's explanation and that of increased combining power of tissues for chlorids must form the basis for any reasonable explanation of the condition. Nothing in the history of the case points to any anatomic lesion which might account for the hydrops. The appearance in the blood of toxic products inhaled through the lungs as the result of continued sojourn in the vitiated air of a chemical laboratory might readily set up changes in the epithelial lining of the capillaries rendering them more permeable and at the same time bring about changes in the protoplasm of the cell by which the combining power of the proteins would be increased. This in turn would cause an increased osmotic concentration in the cells and as an attempt to reduce this, water would be drawn from the blood. This view would explain, on the one hand, the failure of digitalis and similar agents to cause a diuresis, the dryness of the skin and inability to produce sweating in hot baths; and, on the other hand, the beneficial effects of artificial Nauheim baths in stimulating the cutaneous circulation and capillary epi-

[9] Müller Morbus Brightii, Verhandl. d. deutsch. path. Gesellsch., 1905, ix, 64.

[10] Cohnheim, J., and Lichtheim, L.: Ueber Hydrämie und hydrämisches Oedem, *Virchow's Arch. f. path. Anat.*, 1877, lxix, 106.

thelium, and the effect of potassium nitrate in starting the replacement of the combined chlorids by means of the nitrate, after which the reduction in ionic concentration, followed by means of mass action. Bunge[11] might be more prone to explain this last process as a replacement of the sodium ion by potassium.

Finally, it must be mentioned that Georgopulos and others present strong arguments against the view that the water retention is secondary to the salt retention. They believe that the kidney becomes more impermeable to water, a hydremic plethora results and the tissues become overladen with water as a result. Georgopulos states with truth that an increase in the salt content of the tissues during the so-called salt retention has never been proved by experiment. This, however, may have been due to faulty methods. At present it is impossible to decide these disputed points. Nevertheless, we feel inclined to believe, from all the evidence which we have been able to obtain from the results derived from the study and treatment of the case, that the above explanation is possible and most probable and that we are dealing with a case of chlorid retention brought about by the action of some general toxemia which occasioned an increased permeability of the capillaries to chlorids and an augmented combining power of the protoplasm for these ions.

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# OCCURRENCE OF SPONTANEOUS ARTERIAL DEGENERATION IN THE RABBIT.*

By RICHARD M. PEARCE, M. D.

As one of the earlier investigators of lesions of the vascular system occurring in the rabbit after intravenous injections of adrenalin[1] I have been interested in the observation of Drs. Miles and Johnstone[2] concerning the frequent occurrence of spontaneous arterial lesions. These investigators suggest that the vascular lesions, ascribed by many observers to the injection of adrenalin, are in reality of spontaneous origin. In support of this view they present the results of the examination of a large num-

[11] Bunge: Lehrbuch der physiologischen Chemie, Leipsic, 1900.

* Work done under a grant from the Rockefeller Institute for Medical Research. Published also in *Jour. Am. Med. Assoc.*, 1908, li, 1056.

[1] *Jour. Exper. Med.*, 1906, viii, 74, 400; *Am. Jour. Med. Sciences*, 1906, cxxxii, 737.

[2] *The Journal A. M. A.*, Oct. 5, 1907.

ber of normal rabbits in which lesions similar to those produced by adrenalin occurred with equal or greater frequency.

The inevitable conclusion is either that the spontaneous lesions are common and that the individuals working with adrenalin have been careless about their controls, or that rabbits of certain localities, or those raised or kept under certain conditions, are peculiarly prone to spontaneous lesions. The first of these conclusions has been met by Dr. Joseph L. Miller,[3] who points out that in Jores exhaustive review of the many attempts, often on a large scale, to produce arteriosclerosis experimentally there is no mention of successful results. These experiments included the use of a variety of substances and in by far the larger number the rabbit was used. Furthermore, during the past few years many attempts have been made to produce arterial lesions by subcutaneous and intraperitoneal injections of adrenalin as controls of the intravenous administration; a procedure necessitating a very careful comparative study of the rabbit's vascular system.

The only spontaneous lesions, according to Miller, which were described previous to the work of Miles and Johnstone were the slight changes described by Fisher in poorly nourished animals, a single instance reported by Ophüls and possibly the atheroma, in two rabbits, ascribed by Croftan to injections of hypoxanthin. Miller, moreover, points out that in Loeb's series of 100 normal rabbits and Meronescu's of 300, no lesions were found and also that the subcutaneous adrenalin injection experiments of Miles and Johnstone are of no value. The weight of evidence, therefore, does not support the suggestion that spontaneous lesions are general but have been overlooked by the neglect of control observations.

In this respect, however, I must admit my negligence in not reporting control observations in my earlier communication. Control observations were made on a small number of animals with entirely negative results, but on account of the small number were not published. During the past winter, in order to determine the incidence of spontaneous lesions in the rabbits supplied to the Bender Laboratory, I have examined sixty-two animals. Except for six pairs obtained from dealers in Pittsfield and Brookline, Mass., these animals were procured in the neighborhood of Albany, usually in small lots of one, two or three pairs, and in large

[3] *The Journal A. M. A.*, 1907, xlix, 1789.

part were animals which had been caught in the fall and domesticated but a short time. Of these, fifty-one may be considered presumably normal animals in that they had not been used previously for experiment of any kind, or were used only on the day of killing for blood pressure experiments or to obtain blood or fresh organs. They also represent animals which, in that they were used shortly after purchase, did not pass through a long laboratory life. They may be grouped roughly according to size into three groups of about equal number as large, small, and medium size. Vascular lesions were found in but three; these consisted, in each, of a few minute patches at the beginning of the aorta. All were large animals and presumably full grown.

Of the remaining eleven animals, one suffered from an abscess of the hip; three had received repeated injections of dog's serum; one, nephrotoxic serum; one, human blood; one, typhoid bacillus and three, chrome salts. These were all in the laboratory for several weeks or months. In this group lesions of the aorta occurred in four; in the animals receiving, respectively, injections of typhoid bacillus, dog serum, nephrotoxic serum and human blood. In two of these the lesions were diffuse involving irregularly the entire aorta and comparable to those produced by adrenalin. In the other pair a few small areas were present at the beginning of the aorta only.

This control study shows that spontaneous lesions were found in three of fifty-one presumably normal rabbits or in practically six per cent., or, if the animals used for various experimental purposes are included, in seven of sixty-two animals or eleven per cent. This last view, however, is hardly fair, for as the lesions were present in four animals of the second group, or in thirty-six per cent., it cannot be denied that the experimental procedure may possibly have had some share in their production. Certainly the influence of typhoid toxin and alien sera can not be entirely set aside in view of our knowledge of the very general degenerative changes which these substances cause.

In this connection it may be mentioned that Israel[4] in his study of the relation of heart hypertrophy to experimental nephritis has described and pictured a very diffuse lesion of the aorta in a rabbit receiving injections of alcohol directly into the kidney. This observation has been quite generally ignored in the recent

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[4] *Virchow's Archiv.*, 1881, lxxxvi, 299.

literature of experimental arteriosclerosis; but Israel's illustration plainly pictures a lesion of the aorta not to be distinguished from that caused by adrenalin.

It would appear, therefore, that while spontaneous arterial degeneration may occur in the rabbit, it is not as constant a condition in all localities as the investigations of Miles and Johnstone indicate. Moreover, the figures here presented offer a satisfactory control of my earlier report on the general subject of experimental arteriosclerosis due to adrenalin and the later report in which I conclude that single doses of adrenalin may cause arterial lesions, a conclusion which might appear doubtful if viewed only in the light of the experiments of Miles and Johnstone.

In my opinion the occurrence of spontaneous lesions in the rabbit does not diminish the importance of the lesions due to adrenalin, but on the contrary, increases their importance, as an example of a lesion occasionally occurring naturally, but which may readily be produced experimentally. The rabbit thus becomes a peculiarly valuable animal for the study of vascular lesions, for the interest of the adrenalin lesion lies not so much in its arteriosclerosis-like nature as in the opportunity offered for the study of degenerative and reparative lesions of arteries.

The possibility of a variety of factors operating to cause vascular injury is suggested by the four positive findings in the second group of eleven rabbits. The contrast with the first group is very striking and would indicate that a study of the arterial system of a large number of rabbits, kept under a variety of conditions, and subjected to various experimental procedures, would yield results of great value concerning chronic vascular lesions.

Finally it may be stated that the demonstration of these spontaneous lesions in no way vitiates the importance of the experimental lesions but does demand a very careful control study of the rabbits in each locality in which experiments are made.

# THE EFFECT OF CONDITIONS UPON THE LATENT PERIOD AND RATE OF ASEPTIC POST-MORTEM AUTOLYSIS DURING THE FIRST TEN HOURS.[1]

By HOLMES C. JACKSON.

*Adjunct Professor of Physiological Chemistry, Albany Medical College.*

The experiments about to be described had for their purpose an attempt to determine the character of the initial physical or chemical changes which occur in an organ as the result of its becoming disconnected from the blood supply, and are responsible for the setting up anew or the gaining ascendancy of those catalytic processes commonly known as autolysis. It seemed that information gained in this direction would be of especial value in a discussion of the question as to whether autolytic processes present but a survival of the same or similar processes occurring in the living cell or whether they represent reactions set up *de novo* as the result of incipient somatic death.

The point of attack in such a problem must fall upon the initial or early hours of the autolytic process. On this account, one may neglect in the discussion the almost numberless investigations dealing with autolytic processes in general and the effect upon them of changes in condition such as reaction, etc., and confine oneself to the experiments in which the autolysis was studied with especial reference to the first six to eight hours after shutting off the circulation from the organ either by removal from the body or otherwise.

But few investigators have busied themselves directly with this line of work. Of first importance must be considered the work of Lane-Claypon and Schryver (1) which indicates that the course of autolysis in the first twenty-four hours may be divided into three stages; (*a*) a latent period of from two to four hours, (*b*) a period of rapid autolysis and (*c*) a period of gradual autolysis.

Of perhaps chief interest in this connection is the latent period of two to four hours existing between the removal of the tissue from the body and the commencement of autolysis. If such a

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[1] Conducted under a grant from the Rockefeller Institute for Medical Research. Read by title before the American Society of Biological Chemists, Chicago, Ill., January 2, 1908. Abstract appeared in the *Journal of Biological Chemistry*, 1908, 4, Nos. 4 and 5, p. xxxvii Received for publication October 12, 1908.

latency in autolysis does exist and is not the result of some condition of the experiment, then it becomes natural to conclude that this latent period represents the time during which the condition of the cell is being so changed by the lack of circulating blood and perhaps other causes that new or more rapid catalytic reactions may take place and set up a disintegration more pronounced than occurs during cellular life. Such reactions may be originated in various ways. Lane-Claypon and Schryver found that the state of nutrition markedly influenced the course of the autolysis in that the latent period was absent in the livers of fasting animals and that these tissues underwent more rapid decomposition than was the case in the well-fed animal. This is explained with the assumption that since it is probable that enzymes are liberated in the process of autolysis, the fasting liver contains more enzymes free to act (uncombined) or in the form of corresponding zymogen. The latent period is taken as indicating that in the well-fed animal a preponderance of the enzymes are in the form of zymogens and that the first stage in autolysis consists in the transformation of zymogen into active zymin. The presence of free enzymes in fasting animals indicates to these authors the probability that the liberation of these enzymes acts as a normal mechanism for the *intravitam* utilization of proteins in tissues—the supplying of food when none is taken in per os.

In a subsequent paper (2) Schryver has somewhat altered his theory of enzyme liberation as a cause of the latent period in order to correspond to criticisms of Wiener (3), who claimed that the latent period was merely due to the natural inhibitory effect of the alkaline reaction of the living tissues and that the latency ended with the sufficient neutralization of the alkalies by means of the acids formed in autolysis. This, of course, is reasoning in a circle since it does not explain what originates or accelerates the process by which the acids are formed for neutralization purposes.

Schryver has advanced a somewhat complicated theory for the preservation of chemical equilibrium in the living cell. The equilibrium of enzymes is established by the presence of an excess of ammonia which prohibits the formation of an acid reaction, necessary for autolysis. During starvation, the excess of ammonia gradually disappears and when the production of acid is sufficient to supersaturate the alkalinity, the autolytic

enzymes liberate aminoacids; these in turn are transformed in the liver with the production of ammonia which again inhibits the autolytic processes. The non-nitrogenous moiety of the autolytic products serves as food for the fasting cells.

It can hardly be conceived that the author believes that free ammonia is present in the cell at any time, although this is necessary to the theory. In view of the neutrality of protoplasm and the extreme variations which may occur in the production of acid and of alkali without change in this neutrality as shown by Henderson and Black (4), Schryver's position seems untenable.

On account of the many possible explanations for the latent period and its importance in deciding the cause of autolysis, it seemed of sufficient interest to examine this subject somewhat more closely and to attempt if possible to shorten or prolong the period by altering the conditions of the experiment.

In order to obtain an insight into the character and velocity of the reactions taking place in the liver after its removal from the body, three factors were determined during the autolyses.

1. The changes in the depression of the freezing point. This method has been employed by several authors and more recently by Fredericqs (5), Delrez (6) and by Wells and Benson (7). The first of these investigators employed a somewhat complicated procedure in the preparation of the tissue for examination. The methods seem faulty and have been criticized by Wells. The latter two authors have determined coincidently the changes in the electrical conductivity and depression of the freezing point during autolysis. Both authors report that in general these factors parallel each other closely. In this work therefore the determination of the electrical conductivity has for various reasons been neglected.

2. The increase or decrease in noncoagulable nitrogen.

3. Changes in reaction were examined by means of phenolphthalein and dimethylaminoazobenzene. Body fluids react acid to the former and alkaline to the latter; phenolphthalein is particularly sensitive to changes in the hydrogen ionic content while dimethylaminoazobenzene only indicates an $H^+$ concentration about equal to that of an 0.8 per cent. lactic acid solution. In this way it seemed possible to determine the character of the substances causing the change in reaction, if such occurred.

The general method of experimentation was as follows: The liver tissue was removed aseptically,[2] passed through a sterile hashing machine into a sterile Erlenmeyer flask of 500 cubic centimeters capacity provided with a cotton plug. The flask containing 300 cubic centimeters of the salt solution (cold or at 38° C.) in which the autolysis was to proceed was counterpoised on scales and 100 grams of the ground tissue were weighed out by allowing the material to drop from the machine directly into the flask. During the process the whole apparatus was covered with a sterile cloth to exclude air contamination. The mixture being thoroughly shaken a control sample of 50 cubic centimeters was removed with bacteriological technique into a smaller stoppered flask. This was brought to the boiling point without change in reaction, allowed to cool, thoroughly mixed, and filtered.

This coagulum-filtrate was immediately put through the routine examination for determination of the depression of the freezing point by means of Beckmann's apparatus,[3] determination of the noncoagulable nitrogen by the Kjeldahl method and titration of the respective acidity by means of phenolphthalein and alkalinity to dimethylaminoazobenzene. For each of these determinations ten cubic centimeters of the filtrate were employed and all were conducted in duplicate.

After the removal of the control sample the flask was placed in the thermostat at 38° C; when the liver was not irrigated this occurred about twenty minutes after the death of the animal; the washing of the organ occupied ten minutes longer time. At definite times as indicated by the protocols, samples of 50 cubic centimeters were removed with bacteriological technique, the sample coagulated as above and the main flask returned to the incubator. At each time when a sample was withdrawn, a drop of the autolytic mixture was allowed to fall upon a sterile agar slant and at the end of the experiment these were incubated at 38° C. for from twenty-four to forty-eight hours. In practically all cases where the experiments ran for only six to eight hours, the agar slants when examined by a stained smear gave negative results—indicating a practical absence of organisms or,

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[2] The usual surgical operative technique was employed.

[3] Several control examinations were made as to the depression of the freezing point of the coagulated and uncoagulated samples. The two gave results which were almost identical or within the limit of accuracy of the work.

at least, that they were in such small numbers that a drop of the mixture taken at random failed to include one of them. All experiments in which the slant or smear indicated organisms, have been excluded. In the experiments where the period was extended, it was noticed that at times at the twelfth hour there was evidence of the presence in small numbers of certain organisms. In some instances the tests would remain negative even at twenty-four hours; in others the hay bacillus or another bacillus which will be discussed in a short note by Jackson and Hawn, made its appearance between twelve and twenty-four hours in quantities sufficient to give decidedly sour nonputrefactive odor to the autolytic mixture. In this connection must be mentioned the work of Magnus-Levy (8) who showed that acids of fatty nature as well as methane and hydrogen sulphide are produced during the first twenty-four hours of aseptic liver autolysis. His results as regards acidity are confirmed in the work presented here. This author also experienced the same difficulty in obtaining sterile organs that was met with in this work. Experiments in which infection has occurred have either been omitted or a note of the infection made in the protocol. In some other experiments a decided putrefactive odor appearing between six and eight hours indicated contamination of some sort; no account has been taken of these.

Note must also be made of the fact mentioned by Schryver (9) and others that very frequently the glycogen when present in the liver of the dog disappeared very slowly during the autolysis. In certain experiments it was still present at the end of six hours of incubation; at times, however it would disappear earlier, but no instance can be found in the notes where the first or third hour sample was negative when the control indicated the presence of glycogen. Schryver states that in fasting dogs the glycogen disappears very quickly, while it remains for twenty-four hours in the livers of well-fed animals. It is hard to explain why livers of animals which have fasted for several days should contain glycogen at all, since it is ordinarily believed that in starvation it disappears quite quickly. In only some of the fasting animals in the experiments of this paper did glycogen appear in the liver; it is therefore manifestly impossible to make comparison with Schryver's results. The variations in appearance of glycogen and the rapidity of its disappearance noticed in the well-fed animals renders Schryver's distinction improbable however. The probable

relationship of the slow disappearance of glycogen from the liver post-mortem and of its presence or absence to the autolytic processes going on, is discussed elsewhere in this paper.

Again in certain autolyses the mixture after the second or fourth hours began to take on a greenish nuance which developed quite rapidly in intensity until at the sixth hour, the color became dark green, almost black. This was noticed, of course, in a comparison of the coagulum-filtrates at the end of the experiments and seemed most prone to occur in those cases where the liver contained glycogen; the phenomenon remained present throughout the autolysis. Without doubt this peculiar condition was the result of the presence of oxidizing enzymes similar to tyrosinase and to those which noticed in plants by Palladin (10) and others, transform colorless into dark colored compounds, pigments or melanines.

As evidence of the accuracy of the experiments and the limits of error which the technique involved, reference must be made to the protocols of two experiments No. 25A, B and C and 26A, B and C.[4] In these cases three controls were simultaneously started the only difference being that two of them in each experiment were kept in the dark. Since this condition did not seem to effect the autolyses, the results serve as admirable controls of the method.

The experimental evidence obtained as the result of this work will be taken up as follows:

1. Effect on latent period of (*a*) condition of animal, (*b*) presence or absence of blood, (*c*) temperature of diluent salt solution.

2. Effect of conditions upon the commencement and rate of the autolysis. (*a*) nutritional state of the cell, (*b*) light, (*c*) antiseptics, (*d*) reaction, (*e*) salt concentration.

## LATENT PERIOD.

*Effect of Nutrition.*—Schryver's experiments indicated that the best conditions for obtaining a latent period were present in the livers of well-fed animals. Hence Series I (four experiments) was carried out after the general method indicated previously in the paper. The animals were well-fed for several days previous to death; the livers were taken out without irrigation and *cold* physiological salt solution ( $\Delta=0.568$) added in appropriate amount. The whole mixture of tissue and salt solution was then

[4] See Tables II, III and IV.

placed in the thermostat at 38° C. All experiments (5a, 5b, 6, 10) showed (Table I) that the depression of the freezing point

TABLE I.[5]

Series I

| Liver Unwashed; Cold Saline Solution | Control | 1 Hours | 2 Hours | 3 Hours | 4 Hours | 5 Hours | 6 Hours | 7 Hours |
|---|---|---|---|---|---|---|---|---|
| Exp. 5a | 0.670 | 0.655 | 0.665 | 0.680 | 0.690 | 0.715 | 0.750 | |
| | 6.20 | 5.20 | 5.25 | 5.05 | 5.35 | 5.95 | 6.60 | |
| Well-fed | 0.55 | 0.60 | 0.65 | 0.70 | 0.75 | 0.85 | 1.85 | |
| | 0.85 | 1.00 | 1.15 | 1.30 | 1.45 | 1.65 | 2.20 | |
| Exp. 5b | 0.670 | — | 0.665 | 0.665 | 0.685 | 0.685 | 0.695 | 0.710 |
| | — | — | 5.65 | 5.75 | 5.55 | 5.55 | 5.65 | 5.85 |
| Well-fed | 0.30 | 0.40 | 0.40 | 0.35 | 0.55 | 0.60 | 0.65 | 0.70 |
| | 1.00 | 1.05 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 0.95 |
| Exp. 6 | 0.665 | 0.650 | 0.660 | 0.655 | 0.665 | 0.665 | 0.675 | 0.690 |
| | 7.00 | 6.15 | 5.90 | 6.60 | 7.80 | 8.00 | 8.30 | — |
| Well-fed | 0.50 | 0.50 | 0.50 | 0.60 | 0.65 | 0.80 | 0.85 | 0.90 |
| | 1.20 | 1.10 | 1.15 | 0.95 | 0.90 | 0.95 | 0.95 | 1.00 |
| Exp. 10 | 0.675 | — | 0.660 | 0.660 | 0.675 | 0.685 | 0.720 | 0.725 |
| | 7.45 | | 6.85 | 7.35 | 7.60 | 7.85 | 7.60 | 7.70 |
| Well-fed | 0.75 | — | 0.90 | 1.05 | 1.05 | 1.10 | 1.30 | 1.35 |
| | 1.35 | — | 1.40 | 1.25 | 1.35 | 1.30 | 1.55 | 1.40 |

Series II

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Exp. 14 | 0.600 | 0.595 | 0.605 | 0.615 | 0.615 | 0.620 | 0.645 | |
| | 7.35 | 7.45 | 7.70 | 7.75 | 7.85 | 7.90 | 8.45 | |
| Not fed | 0.75 | 0.90 | 1.05 | 1.05 | 1.10 | 1.30 | 1.35 | |
| | 1.35 | 1.40 | 1.25 | 1.35 | 1.30 | 1.55 | 1.40 | |
| Exp. 22 | 0.660 | 0.685 | 0.710 | 0.700 | — | 0.710 | 0.715 | |
| | 6.95 | 7.20 | 7.10 | 6.90 | 7.20 | 7.20 | 7.10 | |
| Not fed | 0.40 | 0.50 | 0.70 | 0.70 | 0.95 | 0.90 | 1.10 | |
| | 0.90 | 0.95 | 1.00 | 0.90 | 1.05 | 1.10 | 1.00 | |
| Exp. 28A | 0.235 | 0.235 | 0.240 | 0.290 | 0.330 | 0.340 | 0.345 | |
| | 5.80 | 4.65 | 4.55 | 4.35 | 4.45 | 4.40 | 4.55 | |
| Not fed | 0.40 | 0.55 | 0.45 | 0.60 | 0.85 | 1.05 | 1.35 | |
| | 1.35 | 1.15 | 1.25 | 1.20 | 1.25 | 1.10 | 1.35 | |
| Exp. 19 | 0.670 | 0.710 | 0.720 | 0.725 | 0.735 | 0.755 | 0.790 | |
| | 5.95 | 6.00 | 5.75 | 5.75 | 6.00 | 6.30 | 7.50 | |
| Well-fed | not done | | | | | | | |

remained practically the same as the control with a slight tendency perhaps to decrease until the third or the fourth hour after which a more or less marked increase occurred to the end of the experiment. The figures for the non-coagulable nitrogen although somewhat fragmentary indicate also a positive decrease from the control occurring during the first three or four hours. The

[5] The upper left-hand figures represent degrees of depression of the freezing-point; the upper-right hand figures, non-coagulable nitrogen expressed as cubic centimeters of $N/10$ acid; the lower left-hand figures, acidity to phenolphthalein in terms of cubic centimeters of $N/10$ acid; lower right-hand figures, alkalinity to dimethylaminoazobenzene in terms of cubic centimeters of $N/10$ alkali.

figures for the fifth and sixth hours rising above the control are indicative of the commencement of nitrogenous autolysis. The acidity to phenolphthalein increased without much evidence of latency except in Experiment 6 while the figures for the alkalinity to dimethylaminoazobenzene vary—two experiments showing no change, one an increase and one a decrease. The figures considered as a whole would certainly convey the impression that autolytic changes of the usual type had not begun to show themselves until between the third and fourth hour after removal of the tissue from the animal's circulation.

In the endeavor to control the statement of Schryver that the fasting livers did *not* show this latent period, Series II of three experiments (14, 22, 28A) were conducted in a manner similar in all details to Series I except that the animals were fasted for a few days previous to use. The livers were free from glycogen with the exception of that used in Experiment 28A.

In the protocol (Table I) the results for the depression of the freezing-point show that in two experiments a latent period of two hours existed while in the third (Experiment 22) autolysis began immediately. The figures for non-coagulable nitrogen in Experiments 22 and 28A however, point strongly to an inhibition of autolysis which lasted for five hours. In Experiment 28A the animal had not received food for three days previously; the liver contained glycogen which however gradually disappeared until no evidence of it could be obtained at the fourth hour, at which time it will be noticed that the marked depression of the freezing-point stopped. The non-coagulable nitrogen of the successive samples showed a marked diminution over the control with no evidence of an increase—rather a decrease—to the end of the experiment. This peculiar relation of glycogen disappearance to changes in the depression of the freezing-point and non-coagulable nitrogen will be taken up later in the paper. Finally one experiment (19) with a well-fed animal similar to those of Series I gave no latent period as indicated by the depression of the freezing-point but the non-coagulable nitrogen figures showed an inhibition of autolysis lasting until the fourth hour. In all of the experiments in Series II the acidity figures with phenolphthalein showed a consistent increase from the very beginning of the experiment, while the alkalinity to dimethylaminoazobenzene remained constant to the end.

Although Series I with well-fed animals resulted as expected

according to Schryver, Series II with three fasting animals and one well-fed animal was unsatisfactory.

Turning about to find a cause for these varying results and at the same time attempting to obtain some condition which might influence the latency of the autolysis, it seemed plausible to try the effect of two factors; first, the absence of blood; and second the use of *warm* (38° C.) saline at the outset of the experiment.

*Effect of Blood.*—The elucidation of the question as to the effect of blood upon the latent period would bear directly upon the criticism of Schryver by Wiener mentioned above, as well as serve to accentuate the fact of the well-known inhibitory effect of blood upon the rapidity of autolysis noticed so frequently[6] although its cause is so poorly understood (11). The washing of the alkaline blood from the liver would tend certainly to remove a certain amount of bases from the organ together with other salts lost by diffusion during irrigation with the salt solution. Consequently two experiments (Series III) were conducted in which the livers were thoroughly irrigated through the portal vein with cold saline solution and diluted with cold saline solution; one animal was fasting (20) and the other well-fed (17). From the figures (Table II) for the depression of the freezing-point no latency of autolysis occurred and the increase is pronounced to the end of the experiment. The same is true for the non-coagulable nitrogen except that a slight indication of possible latency showed itself in the well-fed animal. The acidity to phenolphthalein increased and the alkalinity to dimethylaminoazobenzene remained constant as usual.

These two preliminary experiments seemed sufficient to make it evident that the presence of blood formed one of the inhibitory factors in the latency. This fact is of course not new except as it applies to the latent period and was to be expected since, as was stated above, the inhibitory effect of alkalies upon autolysis and their supposed action in prohibiting autolysis *in vivo* might be considered as persisting some time after removal of the organ after death.

*Effect of Temperature of Salt Diluent.*—The next series (IV) was planned to determine the effect of keeping the organ at body temperature during removal and subsequent autolysis. The washing was therefore accomplished with *warm* saline and *warm* saline added as diluent. The only time during which a lowering of tem-

[6] Schryver (p. 180), in one experiment, found no difference in the rate of autolysis between the perfused organ and one containing blood.

TABLE II.[7]

Series III

| Liver Washed; Cold Saline | Control | 1 Hour | 2 Hours | 3 Hours | 4 Hours | 5 Hours | 6 Hours |
|---|---|---|---|---|---|---|---|
| Exp. 20 | 0.555 | 0.570 | 0.590 | 0.595 | 0.600 | 0.610 | 0.625 |
| | 5.40 | 5.90 | 5.80 | 6.10 | 6.30 | 6.40 | 6.60 |
| Not fed | 0.35 | 0.40 | 0.70 | 0.75 | 0.80 | 0.95 | 1.05 |
| | 0.70 | 0.65 | 0.70 | 0.80 | 0.85 | 0.80 | 0.90 |
| Exp. 17 | 0.565 | 0.585 | 0.600 | 0.620 | 0.640 | 0.650 | 0.710 |
| | 5.05 | 4.95 | 5.15 | 5.50 | 5.65 | 5.80 | 6.30 |
| Well-fed | 0.50 | 0.60 | 0.70 | 0.80 | 0.85 | 1.00 | 1.10 |
| | 1.00 | 0.90 | 0.95 | 0.95 | 1.20 | 1.15 | 1.05 |

Series IV.

| Liver Washed and Diluted with Warm Saline | | | | | | | |
|---|---|---|---|---|---|---|---|
| Exp. 9 | 0.575 | 0.595 | 0.605 | 0.620 | 0.635 | 0.665 | 0.670 |
| | 5.70 | 6.35 | 7.05 | 7.35 | 8.65 | 9.65 | 10.50 |
| Well-fed | 0.50 | 0.85 | 1.15 | 1.15 | 1.25 | 1.35 | 1.60 |
| | 1.15 | 1.20 | 1.40 | 1.50 | 1.50 | 1.50 | 1.95 |
| Exp. 11 | 0.555 | 0.540 | 0.585 | 0.590 | 0.590 | 0.615 | 0.640 |
| | 5.40 | 5.35 | 5.50 | 5.70 | 6.15 | 6.30 | 6.80 |
| Well-fed | 0.50 | 0.65 | 0.80 | 0.80 | 0.9 | 1.00 | 1.10 |
| | 1.10 | 1.25 | 1.05 | 0.95 | 1.00 | 1.25 | 1.35 |
| Exp. 15 | 0.615 | 0.605 | 0.615 | 0.635 | 0.640 | 0.645 | 0.670 |
| | 6.30 | 6.10 | 6.20 | 6.35 | 6.50 | 7.20 | 8.25 |
| Well-fed | 0.40 | 0.55 | 0.60 | 0.75 | 0.90 | 1.00 | 1.10 |
| | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 1.25 | 1.35 |
| Exp. 18 | 0.660 | 0.675 | 0.705 | 0.710 | 0.725 | 0.735 | 0.740 |
| | 5.30 | 5.85 | 5.90 | 6.30 | 6.70 | 6.80 | 7.25 |
| Well-fed | 0.40 | 0.60 | 0.65 | 0.70 | 0.85 | 0.90 | 1.05 |
| | 0.60 | 0.95 | 0.95 | 0.75 | 0.75 | 0.65 | 0.75 |
| Exp. 29E | 0.325 | 0.345 | 0.365 | 0.385 | 0.395 | 0.415 | 0.435 |
| | 4.50 | | 5.70 | | 6.45 | | 7.45 |
| Not fed | 0.45 | 0.65 | 0.80 | 0.95 | 1.10 | 1.20 | 1.40 |
| | 0.75 | 0.80 | c.80 | 0.70 | 0.75 | 07.5 | 0.70 |
| Exp. 26A | 0.560 | 0.565 | 0.575 | — | 0.585 | 0.600 | 0.625 |
| | 4.75 | 5.10 | 5.55 | 6.00 | 6.50 | 7.15 | 7.65 |
| Not fed | 0.35 | 0.50 | 0.75 | 0.80 | 0.85 | 0.90 | 1.00 |
| Dark | 060. | 0.70 | 0.65 | 0.60 | 0.70 | 0.75 | 0.80 |
| Exp. 26C | 0.555 | 0.565 | 0.570 | 0.585 | 0.610 | 0.620 | 0.625 |
| | 4.90 | 4.95 | 5.25 | 6.30 | 6.75 | 7.00 | 7.45 |
| Not fed | 0.20 | 0.35 | 0.55 | 0.75 | 0.90 | 0.95 | 1.05 |
| | 0.50 | 0.75 | 0.85 | 0.80 | 0.75 | 0.80 | 0.85 |

perature could occur was during the period of hashing. This, of course, represented only a few minutes and could cause at most a temperature depression of a few degrees. Some of the hashed material was tested and gave 34.5° C. The warm saline quickly brought this up to 37° C. Seven experiments were carried on in

[7] The upper left-hand figures represent degrees of depression of the freezing-point; the upper right-hand figures, non-coagulable nitrogen expressed as cubic centimeters of $N/10$ acid; the lower left-hand figures, acidity to phenolphthalein in terms of cubic centimeters of $N/10$ acid; lower left-hand figures, alkalinity to dimethylaminoazobenzene in terms of cubic centimeters of $N/10$ alkali.

this way (Experiment 9, 11, 15, 18, 29E, 26A, 26C). Of these the first four were well-fed and the last three fasting animals. Of the well-fed animals two (9, 18) showed (Table II) a marked autolysis at the outset as indicated by the figures for the depression of the freezing-point and nitrogen. On the other hand in Experiments 11 and 15 a well-marked latent period was present although it persisted for only one hour. Only traces of glycogen were present in the liver of Experiment 11 and it was absent in Experiment 15. The fasting animals whose livers were irrigated and diluted with warm saline gave figures both for depression of the freezing-point and nitrogen indicating no latency and an autolysis which was the most marked of all the experiments of this type.

A fifth series of four experiments (25A, 25C, 31C and 36A) were conducted with unwashed livers of well-fed animals employing warm saline as diluent. Three showed (Table III) immediate

TABLE III.[8]

Series V

| Unwashed Liver Well-fed Warm Saline | Control | 1 Hour | 2 Hours | 3 Hours | 4 Hours | 5 Hours | 6 Hours |
|---|---|---|---|---|---|---|---|
| Exp. 25A | 0.730 | 0.745 | 0.775 | 0.790 | 0.810 | — | 0.840 |
| | 5.10 | 5.40 | 5.60 | 5.70 | 5.80 | — | 6.30 |
| | 0.30 | 0.50 | 0.60 | 0.65 | 0.75 | — | 0.95 |
| Dark | 0.65 | 0.55 | 0.65 | 0.80 | 0.90 | — | 1.20 |
| Exp. 25C | 0.725 | 0.755 | 0.780 | 0.795 | 0.810 | 0.825 | 0.835 |
| | 4.65 | 4.90 | 4.95 | 5.10 | 5.20 | 5.65 | 5.85 |
| | 0.4 | — | 0.55 | 0.65 | 0.70 | 0.85 | 0.95 |
| | 0.50 | 0.60 | 0.70 | 0.85 | 0.90 | 1.05 | 1.10 |
| Exp. 31C | 0.530 | 0.590 | 0.605 | 0.625 | 0.645 | 0.660 | — |
| | 6.10 | 6.20 | 6.25 | 6.35 | 6.70 | 7.00 | — |
| | 0.50 | 0.60 | 0.70 | 0.75 | 0.85 | 0.85 | 0.95 |
| | 0.70 | 0.80 | 0.80 | 0.65 | 0.80 | 0.60 | 1.35 |
| Exp. 36A | 0.720 | 0.715 | 0.735 | 0.755 | 0.775 | 0.785 | 0.800 |
| | 6.05 | 5.60 | 5.50 | 5.90 | 6.15 | 6.65 | 7.15 |
| | 0.40 | 0.70 | 0.75 | 0.80 | 0.85 | 0.85 | 0.85 |
| | 1.50 | 1.30 | 1.15 | 1.25 | 1.20 | 1.10 | 1.20 |

autolysis both in the figures for depression of the freezing-point as well as for non-coagulable nitrogen; one (36A) did not autolyse during the first three hours according to the nitrogen figures,

[8] The upper left-hand figures represent degrees of depression of the freezing-point the upper right-hand figures, non-coagulable nitrogen expressed as cubic centimeters of $N/10$ acid; the lower left-hand figures, acidity to phenolphthalein in terms of cubic centimeters of $N/10$ acid; lower right-hand figures, alkalinity to dimethylaminoazobenzene in terms of cubic centimeters of $N/10$ alkali.

the depression of the freezing-point only indicating an inhibition for the first hour only. It is questionable whether an autolytic latency existed here.

The following classification of experiments in the five series will indicate the results at a glance.

| Conditions of Experiments | Latent Period | | |
|---|---|---|---|
| | Positive | Negative | |
| Unwashed, well-fed, cold saline | 4 | 0 | Series I |
| Unwashed, fasted, cold saline | 2 | 0 | Series II |
| Unwashed, well-fed, cold saline | 1? | 1 | Series II |
| Washed, fed, cold saline | 0 | 1 | Series III |
| Washed, fasted | .. | 1 | Series III |
| Washed, fed, warm saline | 1 | 3 | Series IV |
| Washed, fasted, warm saline | 0 | 3 | Series IV |
| Unwashed, fed, warm saline | 1? | 3 | Series V |
| | 7+2? | 12 | |

Positive Latent Period

| | | | |
|---|---|---|---|
| Fed | 5+2? | Fasting | 2 |
| Cold saline | 6+1? | Warm saline | 1+1? |
| Unwashed | 6+2? | Washed | 1 |

From the tabulation it will be seen that out of twenty-one experiments nine showed a latent period; in two of these however the latency lasted only one hour so that these have been given a question mark. Of the nine positive experiments seven occurred with well-fed animals and only two in fasting ones. These results are somewhat in agreement with Schryver. Again seven of the positive latent periods occurred in experiments where cold saline was employed as diluent. Schryver employed small amounts (4 grams) of material for his experiments. This would cause a rapid lowering of temperature with consequent inhibition. Whether this author used a cold or warm diluent is not stated, and the organs were not washed.

Perhaps some importance may be attached to the fact that five of the nine positive results occurred as the first five experiments performed when the time between the removal of the organ and commencement of the autolysis was somewhat longer than in the latter experiments when our general technique had improved. In this connection it is proper to state that of twenty-five other and similar experiments reported below only four showed a latent period before autolysis and of these cold diluents were employed in three cases.

In view of these facts and of the fact that of thirteen latent periods, nine were in experiments where cold diluents were used, it is evident that the low temperature of the mixture acts as an inhibitory factor in causing a latent period of autolysis until the material becomes warmed throughout to body heat. The presence

of blood in the unwashed organ adds an additional factor to the inhibiting forces.

Upon the whole, therefore, it seems that the latent period is most prone to appear in unwashed livers where cold diluent is employed and in those cases in which the animal was previously well-fed. It seems however, that in the light of all the experiments herein presented, it becomes questionable whether the feeding of the animal and the consequent condition of the liver possesses any direct influence on the latency of autolysis.[9] In this it is impossible to agree with Schryver nor does the latter's reasoning in regard to the liberation of enzymes in the fasting condition seem plausible. There does not exist at present, any evidence which points to any qualitative difference in the enzymic condition between the metabolism of well-fed and fasting animals. The statement that in fasting, autolytic processes by causing decomposition supply the needs of the body by the utilization of the degenerative products simply amounts to placing a well established fact in new terms, since it is very difficult to draw a sharp line between the normal analytic processes by which energy is liberated and those of autolysis associated with the death of the cell. It would appear that the question was more one of a disturbed quantitative equilibrium of the cell than of any qualitative enzymic differences.

## EFFECT OF CONDITIONS UPON THE RATE OF AUTOLYSIS.

The previous discussion has had to do with autolysis within the first three or four hours after the removal of the organ from its circulation. The fact that the results indicated that the latent period was relatively inconstant and dependent upon a variety of factors led to the attempt to study first, the rate of autolysis within the first twelve hours and second, the effect upon it of altering certain conditions in the experiment in the hope that the onset of changes favoring autolysis might be inhibited. This consisted mainly in endeavoring to continue the alkalinity of the cell by means of alkaline phosphates.

*Nutritional State of the Cell.*—One of the most important factors to be considered in the elucidation of the origin and rate of autolysis consists in the determination of the level of equilibrium

[9] As explained later in the paper, the nutritional state of the cell may indirectly cause autolytic variations.

upon which the cell exists at the time of stoppage of the circulation. We look to the diet of the animal as one of the most ready means of normally altering this condition and yet it becomes one of the most difficult to control, since no two animals react similarly to diet or to fasting.

The fat content of the livers of normal animals under the same diet varies as greatly as does the power of individuals to lay on subcutaneous fat.

The appearance or absence of glycogen serves perhaps as best evidence concerning the condition of the cell from the standpoint of nutrition and it is usual to conclude that the tissues are actually in a state of undernutrition when the liver is free from glycogen. Well-fed animals usually possess organs containing more or less glycogen, but even here exceptions exist and frequently animals after a long period of excessive carbohydrate diet do not show glycogen in their livers.

Concerning variations in the nitrogenous content of the liver, it becomes more difficult to make definite statements. Pearce and Jackson (12) showed that as the result of incipient necrosis or starvation from lack of circulation the cells involved lay on nitrogenous compounds in the same way as they do fat. This was in agreement with the results of Seitz (13) obtained under normal conditions. Schryver states that the liver of a fasting dog contains more non-coagulable nitrogen than that of a well-fed animal. In the experiments here reported a great variation in the amount of initial non-coagulable nitrogen exists. The average figure for twenty experiments upon fasting animals compares within one per cent. of that for eighteen well-fed animals. Selecting two cases (Experiments 25 and 26) in each of which there are three controls it is evident that no difference exists. It is not possible therefore to confirm Schryver's statement in regard to differences in nitrogen.

From a consideration of the initial figures for the depression of the freezing-point in twenty-nine experiments in which physiological saline was employed as diluent it is evident that the fasting liver possessed the lowest concentration. Eleven washed organs of which six were fasting and five well-fed and eighteen unwashed organs, seven fasting and eleven well-fed gave averages as follows:

| | |
|---|---|
| Washed, fasting 0.475° (310–560) | Unwashed, fasting 0.600° (575–660°) |
| Washed, well-fed 0.594° (555–660) | Unwashed well-fed 0.664° (515–735°) |

These figures seem sufficiently definite to indicate that as far as ionic concentration is concerned the fasting animals[10] liver showed the lowest figures whether washed or unwashed. The maximum and minimum effects are indicated in Experiments 25 and 26. Experiment 25 was an unwashed well-fed liver and gave, $\Delta = 0.730$ (average three controls) while Experiment 26 with washed and fasting organs, $\Delta = 0.555$ (average three controls). In all instances the washing of the organ decreased the ionic strength of the tissue; this procedure seemed to have little effect however upon the initial acidity or alkalinity. From the fact that perfusion of an organ causes a decreased ionic concentration which is not paralleled by changes in reaction, it seems probable that the ionized substances in the cell which impart its so-called alkaline reaction are of such a character (ionized protein) that interchange or osmosis through the endothelium does not readily take place.

There are no data obtainable from the results presented in this paper which can be of service in explaining the effect of these variable nutritional conditions of the cell upon the latent period and rate of autolysis. The cursory outline above serves merely to bring to mind possible variations in cell equilibrium as regards the carbohydrates, fats, proteins, osmotic concentration, etc. This phase of the subject will receive further consideration in the final discussion as to the cause of and variations in the changes in the reaction of the cell occurring at its death.

*Light.*—The first external change in condition which usually occurs in tissues undergoing incipient autolysis *in vitro* and which is not in accordance with autolysis *in vivo* consists in the placing of the material in the light. Two experiments (25 and 26)— one a well-fed and the other a fasting animal—were consequently performed in which the liver was removed in the dark and two of the samples (25A and B and 26A and B)[11] autolysed in the absence of light. The third sample (25C and 26C) as control, underwent autolysis as usual. These experiments continued for seven and one-half hours. The results (Table IV) indicate that the presence of ordinary light exerts no appreciable influence upon autolysis. The increase of the depression of the

[10] Animals were given water *ad libitum*.

[11] Experiments 25A and 26A differed from 25B and 26B in that in the former a warm diluent was employed. Experiments 26A and 26C appear as the last two upon Table II; Experiments 25A and 25C, as the first two in Table III.

TABLE IV.[12]

| Autolysis in the Dark; Cold Saline (Control) | Control | 1 Hour | 2 Hours | 3 Hours | 4 Hours | 5 Hours | 6 Hours |
|---|---|---|---|---|---|---|---|
| Exp. 25B | 0.735 | 0.755 | 0.765 | 0.780 | 0.810 | 0.820 | 0.835 |
| | 4.80 | 5.50 | 5.65 | 5.85 | 5.95 | 6.00 | 6.10 |
| Not washed well-fed | 0.40 | 0.50 | 0.65 | 0.60 | 0.65 | 0.70 | 0.75 |
| | 0.65 | 0.70 | 0.85 | 0.80 | 0.85 | 0.80 | 0.85 |
| Exp. 26B | 0.550 | 0.550 | 0.560 | 0.575 | 0.590 | 0.615 | 0.630 |
| | 5.20 | 5.35 | 5.85 | 6.10 | 6.60 | 7.15 | 8.00 |
| Washed; not fed | 0.35 | 0.30 | 0.50 | 0.60 | 0.70 | 0.95 | 1.00 |
| | 0.55 | 0.65 | 0.80 | 0.70 | 0.65 | 0.85 | 1.05 |
| **Washed; Not fed** | **Control** | **2 Hours** | **4 Hours** | **6 Hours** | **8 Hours** | **10 Hours** | |
| Exp. 29E | 0.325 | 0.365 | 0.395 | 0.435 | 0.485 | 0.565 | |
| | 4.50 | 5.70 | 5.75 | 7.45 | 10.10 | 15.50 | |
| Warm saline | 0.45 | 0.80 | 1.10 | 1.40 | 2.50 | 2.95 | |
| | 0.75 | 0.80 | 0.75 | 0.90 | 0.95 | 1.95 | |
| Exp. 29F | 0.310 | 0.330 | — | 0.385 | 0.390 | 0.395 | |
| | 4.80 | 5.90 | — | 6.45 | 7.40 | 8.00 | |
| Warm saline and toluol | 0.45 | 0.85 | 0.80 | 0.85 | 0.90 | 1.05 | |
| | 0.70 | 0.85 | 0.85 | 0.90 | 0.85 | 0.90 | |
| **Unwashed; well-fed** | **Control** | **1 Hour** | **3 Hours** | **5 Hours** | **7 Hours** | **12 Hours** | |
| Exp. 31C | 0.530 | 0.590 | 0.625 | 0.660 | — | 1.020 | |
| | 6.10 | 6.20 | 6.35 | 7.00 | 7.60 | 10.70 | |
| Warm saline | 0.50 | 0.60 | 0.75 | 0.85 | 0.90 | 1.45 | |
| | 0.70 | 0.80 | 0.65 | 0.60 | 0.80 | 0.95 | |
| Exp. 31B | 0.515 | 0.530 | 0.600 | 0.620 | 0.635 | 0.690 | |
| Warm saline and chloroform | 5.35 | 5.80 | 6.25 | 6.70 | 7.00 | 8.50 | |
| | 0.5 | 0.60 | 0.70 | — | 0.95 | 1.95 | |
| | 0.90 | 0.85 | 0.80 | — | 1.35 | 3.35 | |

freezing-point, increase of non-coagulable nitrogen and change in reaction ran parallel in both experiments. The differences which one experiment showed as against the other as the result of the feeding of the animal, will be considered later.

*Antiseptics.*—Autolytic experiments as usually conducted in order to insure complete asepsis entail the employment of antiseptics such as toluol, chloroform, etc. The results of Lang (14), while not very complete, indicate that germicidal agents are not without effect upon the activity of the enzymes in autolysis. Wells and Benson (7) however incline to the view that with certain precautions, chloroform may be employed without inhibitory effect. It is evident that where comparative results are to be

[12] The upper left-hand figures represent degrees of depression of the freezing-point; the upper right-hand figures, non-coagulable nitrogen expressed as cubic centimeters of $N/10$ acid; the lower left-hand figures, acidity to phenolphthalein in terms of cubic centimeters of $N/10$ acid; lower right-hand figures, alkalinity to dimethylaminoazobenzene in terms of cubic centimeters of $N/10$ alkali.

obtained, this variable factor should be eliminated. In this work antiseptics were not employed except in Experiments 29 and 31. In the former toluol was utilized and in the latter, chloroform. A glance at the figures in the tables will be sufficient to indicate the inhibitory action of the antiseptic, apparently more potent in the case of toluol than of chloroform. This is evident both in the figures for the depression of the freezing-point and for the non-coagulable nitrogen. Experiment 29 ran for ten hours during which time the depression of the freezing-point increased in the mixture without toluol from 0.325° to 0.565°; while in the toluolized autolysis it increased from 0.310° to 0.385°. In Experiment 31 the similar figure for twelve hours duration are with chloroform 0.515° to 0.690°; without chloroform 0.530° to 1.020°. The nitrogen increase paralleled them closely.

*Reaction.*—It has been quite definitely decided as the result of the work of many investigators (15) that acids accelerate and alkalies inhibit the rate of autolysis. In the majority of the experiments conducted by these workers a concentration of H + or OH-ions has been employed which is out of all accord with that possible in the cell of the animal body. The blood and protoplasm are from the standpoint of physical chemistry considered as neutral (4); very slight variations from this condition may cause profound alterations in the general metabolic process. It seemed therefore, of more value from a comparative standpoint to attempt to vary the so-called acidity and alkalinity relations of the cells in ways which more closely simulate the normal.

The immense importance which the phosphates play as regulating mediums for reaction in the body has been of late repeatedly emphasized. Mixtures of the mono-hydrogen and dihydrogen salts may be appropriately made so that the resultant solution is either neutral, alkaline or acid.[13] Hence disodium monohydrogen phosphate was employed as diluent in the hope of increasing the "alkalinity" of the tissue while the dihydrogen monosodium phosphate promised to augment the "acidity." A further method employed for the latter purpose consisted in the addition of pure neutral ethyl butyrate to the autolytic mixture. As autolysis proceeded the lipolysis of the butyrate set free butyric acid, thereby increasing the acidity markedly. This reaction may also be

[13] In relation to phenolphthalein. Henderson (4) has shown that in solutions of these two salts great variations in their relative proportions may exist without changing the H + concentration to any great degree.

supposed to take place in the living cell but ordinarily sufficient bases are at hand for neutralization. In autolysis (lipolytic) should the bases be lacking the $H^{+}$ concentration would be increased.

An examination of the figures obtained for the control samples as indicative of the character of the initial state of reaction of the tissue indicates that either the method of titration with the two indicators is too crude to show slight variations which might occur in the living tissue, or the factors which influence the reaction of the tissue and which would aid in explaining the results, are unknown. Certain differences in the figures for the controls under the various conditions did appear but no one condition which has been discussed here is apparently accountable for the changes.

In Experiments 23, 28B, 30A, 32C, 33B and 36 (Table V) attempts were next made to increase the alkalinity of the reaction of the mixture in which autolysis was to occur by means of disodium hydrogen phosphate in five per cent. solution and Experiment 28C by alkaline Locke's solution.[14] It is interesting to note that while the disodium phosphate was *alkaline* to phenolphthalein (0.8 c.c. $N/10$ acid for 10 c.c. of solution) and alkaline to dimethylaminoazobenzene (10.65 c.c. $N/10$ acid for 10 c.c. of solution), when the autolytic mixture of this solution and tissue was analyzed, the mixture possessed the *acidity* to phenolphthalein ordinarily found when sodium chloride is employed as diluent. Unfortunately, it is impossible to say from the methods employed just what physical changes occurred when the tissue and phosphate solution were mixed. From the chemical standpoint of reaction the tissue transformed the alkaline solution (phenolphthalein) to one which reacted acid. The explanation for this probably lies in the rearrangement of phosphates in the solution by which the large excess of disodium hydrogen phosphate reacted with acid factors in the tissues and became transformed into sufficient dihydrogen sodium phosphate to cause the autolytic mixture to assume its normal reaction. This forms simply another manifestation of the regulating mechanism described by Henderson (4). All attempts therefore to increase in this manner the alkalinity (phenolphthalein) were negative and the results

[14] Locke's solution to which was added sufficient sodium bicarbonate to bring the strength of the salt up to 0.5 per cent.

TABLE V.[15]

| 5 Per Cent. $Na_2HPO_4$. | Control | 1 Hour | 3 Hours | 6 Hours | 8 Hours | 10 Hours |
|---|---|---|---|---|---|---|
| Exp. 23<br>Washed; well-fed; cold diluent | 0.525<br>—<br>1.45<br>11.50 | 0.520<br>5.30<br>1.90<br>11.35 | 0.560<br>5.60<br>2.00<br>11.30 | 0.610<br>5.80<br>2.25<br>11.80 | | |
| Exp. 28B<br>Unwashed; not fed; warm diluent | 0.530<br>4.30<br>0.65<br>11.45 | 0.545<br>5.60<br>1.00<br>11.25 | 0.615<br>7.10<br>1.40<br>11.40 | 0.640<br>7.75<br>1.65<br>11.80 | | |
| Exp. 30A<br>Unwashed, not fed; 10 *per cent.* warm diluent | 0.685<br>6.70<br>0.70<br>21.75 | 0.710<br>6.65<br>1.00<br>21.65 | 0.745<br>6.50<br>1.05<br>20.90 | 0.780<br>7.65<br>1.15<br>20.95 | 0.795<br>—<br>1.70<br>20.05 | 0.900<br>12.45<br>2.40<br>19.50 |
| Exp. 32C<br>Unwashed; not fed; cold diluent | 0.735<br>—<br>—<br>— | 0.705<br>—<br>—<br>— | 0.705<br>—<br>—<br>— | 0.715<br>—<br>—<br>— | | |
| Exp. 33B<br>Unwashed; not fed; cold diluent | 0.700<br>8.55<br>0.90<br>10.3 | 0.730<br>8.15<br>1.10<br>10.6 | 0.740<br>8.20<br>1.60<br>10.1 | 0.790<br>8.80<br>2.50<br>9.65 | | |
| Exp. 36<br>Unwashed; well-fed warm diluent | 0.910<br>6.15<br>0.90<br>13.1 | 0.900<br>6.40<br>1.2<br>14.9 | 0.950<br>6.90<br>1.55<br>13.05 | 0.995<br>7.55<br>1.75<br>12.65 | | 1.620<br>17.55<br>17.55<br>26.4 |
| Exp. 28C<br>Unwashed; not fed; warm *Alkaline Locke's solution* | 0.680<br>5.60<br>1.60<br>1.15 | 0.700<br>4.40<br>1.70<br>1.15 | 0.785<br>4.65<br>1.85<br>— | 0.795<br>4.80<br>1.7<br>1.50 | 0.805<br>4.60<br>1.75<br>1.25 | |
| Exp. 32B<br>Unwashed; not fed<br>*Cold $Na_3PO_4$* | 0.650<br>—<br>—<br>— | 0.660<br>—<br>—<br>— | 0.650<br>—<br>—<br>— | 0.650<br>—<br>—<br>— | | |

of these experiments do not differ from those reported with saline as diluent.

One experiment performed with Locke's solution made alkaline with 0.5 per cent. sodium bicarbonate[16] (28C) ran seven and one-half hours. In this instance also the resultant mixture of liver and bicarbonate solution became acid to phenolphthalein and alkaline to dimethylaminoazobenzene. In fact the respective acidity and alkalinity was greater in each case than with sodium chloride. Undoubtedly a reaction occurred between the phosphates of the cell and the sodium bicarbonate, carbon dioxide being liberated, and in this way increasing the acidity to phenolphthalein.

[15] The upper left-hand figures represent degrees of depression of the freezing-point; the upper right-hand figures, non-coagulable nitrogen expressed as cubic centimeters of $N/10$ acid; the lower left-hand figures, acidity to phenolphthalein in terms of cubic centimeters of $N/10$ acid; lower right-hand figures, alkalinity to dimethylaminoazobenzene in terms of cubic centimeters of $N/10$ alkali.

[16] Of this solution, 10 c. c required 0.15 c.c $N/10$ acid to neutralize to phenolphthalein and 1.55 c.c. to dimethylaminoazobenzene.

The increase in depression of the freezing-point[17] was about that observed in other experiments, where a similar reaction was present; no inhibition or latent period could be noticed. An examination of the figures for non-coagulable nitrogen indicates however that no nitrogenous autolysis occurred, the figures for the end of the experiment being the same as the control or even somewhat lower. In this case no increase in acidity (phenolphthalein) took place such as ordinarily occurs with sodium chloride solution as diluent.

One experiment employing tri-sodium phosphate as diluent did not result favorably since the autolytic mixture became extremely thick and ropy. Upon heating no coagulation occurred; the mixture required the addition of such a large amount of acid before complete coagulation occurred that attempts to perform nitrogen and acidity determinations were abandoned. Unfortunately the diluent solution was employed cold so that it is impossible to decide whether the extremely long "latent" period as evidenced in the depression of the freezing-point was to be ascribed to this or to the phosphate solution. It would seem more probable that the lack of increase in molecular concentration found in this autolysis was due to the phosphate solution on account of its alkalinity (phenolphthalein) and this fact agrees with observations of previous investigators that alkalies inhibit autolysis. An alkalinity equivalent to this never occurs in the body.

In one experiment (29D) where dihydrogen sodium phosphate served as diluent, the autolytic mixture was strongly acid to phenolphthalein. This experiment should be compared with Experiment 29E (Table II, Series IV) and the control with saline. No noticeable variation in rate of autolysis can be detected.

In Experiment 33 and 36 in which pure ethyl butyrate was added to the autolytic mixture a most marked increase in acidity (phenolphthalein) was observed together with the greatest augmentation of non-coagulable nitrogen and the depression of the freezing-point obtained in any of the experiments. These two experiments ran for twelve hours and were absolutely sterile throughout. The depression of the freezing-point increased in Experiment 36 from 0.810° to 1.515° and in Experiment 33 from 0.685° to 1.285°. The non-coagulable nitrogen rose in Experiment 36 from 5.8 to 28.15 and in Experiment 33 from 3.25 to

[17] Whether this is indicative of autolysis is questionable; *c. f.*, the later discussion on this point.

TABLE VI.[18]

| | Control | 2 Hours | 4 Hours | 6 Hours | 8 Hours | 10 Hours |
|---|---|---|---|---|---|---|
| Exp. 29D<br>Washed; not fed; 5 per cent. $H_2NaPO_4$ | 0.635<br>5.05<br>10.95<br>1.85 | 0.635<br>5.30<br>11.7<br>1.75 | 0.680<br>5.50<br>12.85<br>1.95 | 0.725<br>7.40<br>13.05<br>1.75 | 0.765<br>12.40<br>13.50<br>1.60 | 0.795<br>14.35<br>14.05<br>1.65 |
| Exp. 33C<br>Unwashed; not fed; 1 c.c. ethyl butyrate with saline diluent | 0.685<br>3.25<br>1.10<br>2.00 | 0.725<br>4.50<br>1.30<br>2.10 | 0.745<br>7.40<br>1.85<br>2.45 | 0.820<br>14.90<br>3.00<br>2.80 | —<br>—<br>—<br>— | 1.285<br>33.85<br>5.10<br>8.60 |
| Exp. 36C<br>Unwashed' fed; 1 c.c. ethyl butyrate with saline solution | 0.810<br>5.80<br>1.25<br>1.10 | 0.815<br>5.60<br>1.55<br>1.55 | 0.845<br>5.35<br>1.60<br>1.45 | 0.920<br>10.05<br>2.35<br>1.65 | | 1.515<br>28.15<br>6.65<br>5.35 |
| Exp. 27E<br>Unwashed; not fed; warm Locke's solution. | 0.625<br>6.25<br>0.40<br>0.75 | 0.650<br>6.10<br>0.60<br>0.70 | 0.670<br>6.10<br>0.80<br>0.70 | | 0.705<br>6.50<br>1.00<br>1.00 | |
| Exp. 31A<br>Unwashed; well-fed; warm Locke's solution | 0.630<br>5.60<br>0.60<br>0.40 | 0.720<br>5.65<br>0.75<br>0.75 | 0.775<br>5.60<br>0.85<br>0.75 | | 0.800<br>7.20<br>1.15<br>0.85 | 1.015<br>20.8<br>6.80<br>2.7 |

33.85.[19] Considered from every standpoint the autolysis was most strikingly accelerated by the formation of the butyric acid during the progress of the autolysis.

In general therefore attempts to alter the rate of autolysis by means of acid and alkaline phosphates and bicarbonates resulted negatively. Some evidence was obtained that an alkaline reaction tends to inhibit the nitrogenous autolysis; this was especially well marked in Experiment 28C. The production of butyric acid during autolysis set up a marked acceleration in the rate of the decomposition.

*Salt Concentration.*—It seemed plausible that one of the conditions which favored the onset of autolysis might consist in the decrease in concentration of the salts (mainly calcium and potassium compounds) of the tissue as the result of the dilution with sodium chloride and phosphates. Such a condition would of course be accentuated in a perfused organ since during the irrigation the calcium, potassium, and other salts would diffuse out from the cell into the perfusing solution.

[18] The upper left-hand figures represent degrees of depression of the freezing-point; the upper right-hand figures, non-coagulable nitrogen expressed as cubic centimeters of $N/10$ acid; the lower left-hand figures, acidity to phenolphthalein in terms of cubic centimeters of $N/10$ acid; lower right-hand figures, alkalinity to dimethylaminoazobenzene in terms of cubic centimeters of $N/10$ alkali.

[19] In Experiment 36 it is noticeable that the acidity did not increase very rapidly during the first four hours and that the nitrogenous autolysis suffered a latent period.

In order to partially avoid such diminished concentration, in two experiments (27E and 31A) Locke's[20] solution was added as diluent and the autolytic rate studied. Although the results show an increase in ionic concentration, the figures for the non-coagulable nitrogen are plainly indicative of a lack of autolysis existing up to the fifth hour. While one cannot draw too definite conclusion from the results of only two experiments, it seems reasonable to believe the retaining of the salt content of the tissue in approximately unchanged concentration, acts as another factor tending to inhibit or at least to retard nitrogenous autolysis. It is also probable that the Ca or K ions are in some way active in this regard, and that the difference in rate of autolysis noticed between washed and unwashed organs can be ascribed to this cause in part.

This question was attacked in another way. The tissues were aseptically removed and allowed to autolyze *en masse* in the thermostat and then diluted as usual with three volumes of physiological saline. Unfortunately no figures for non-coagulable nitrogen were obtained in this series.[21]

The depression of the freezing-point for the tissue itself and the diluted mixture increased in about the same rate as in all other experiments.

## DISCUSSION.

The two procedures employed for the determination of the inception and rate of autolysis have been utilized previously by several investigators. The increase in non-coagulable nitrogen was the first test applied in this direction since it was early recognized that in the autolytic hydrolysis the coagulable nitrogen of the protein became changed into nitrogen of substances which were of smaller molecular weight and could not be rendered insoluble by heat. More recently however the attempt to control this procedure by other methods has resulted

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[20] When physiological saline is employed as diluent, the osmotic concentration of the tissues is supposed to continue the same as when the blood is circulating through the organ. The percentage concentration of the salts other than sodium chloride is nevertheless markedly diminished. Locke's solution which approaches the blood as regards its content of inorganic salts was utilized for this reason.

[21] For this reason the study of this type of experiment is to be continued more particularly with reference to possible differences in the rate of autolysis after the organ has been prepared by perfusion *in situ* with solutions of various types of salts, and in this way the attempt may be made to alter the conditions existing in the cell before the commencement of autolysis.

in the determination of the electrical conductivity and of the molecular or ionic concentrations of the solutions undergoing autolysis. If we are dealing with autolytic mixtures of pure protein, hydrolytic changes occurring in the solution would make themselves evident by all three methods, but not simultaneously, since in the initial stage of the reaction the proteins would become transformed into proteoses or non-coagulable nitrogen, without any decided augmentation in molecular or ionic concentration sufficient to effect the depression of the freezing-point or electrical conductivity. Toward the end of autolysis the maximum proteose nitrogen might be reached while progressive hydrolysis would continue to break down the molecules still further with consequent increased molecular concentration thereby affecting the depression of the freezing-point. The electrical conductivity on the other hand could only be increased by the formation of ionized molecules. From this it is evident that even in a simple solution of protein these three factors might not run parallel.

In the cell however the process becomes still more complex. Autolysis of non-nitrogenous substances such as glycogen, the lipoids, neutral fats and the rearrangement of inorganic salts would set up changes in molecular and ionic concentration which would not be indicated by a study of variations in non-coagulable nitrogen. It is hard therefore to agree with the statement of Wells that determinations made of these three factors (non-coagulable nitrogen, depression of the freezing-point and electrical conductivity) parallel one another. That they might do so must be admitted; that the chances are very much against their doing so is most probable.

A general survey of the results obtained in this investigation presents much evidence in favor of the latter view. In some experiments (5b, 10, 22, 23, 27E and 28A and 28C) conclusions would be reached from the figures obtained from the non-coagulable nitrogen that no autolysis had occurred up to the sixth or eighth hour. In fact in Experiments 28A and 28C less non-coagulable nitrogen was present in solution at the end of seven and one-half hours than in the control at the outset of the experiments. One could naturally assume that non-coagulable nitrogen had become synthetized into protein nitrogen. The figures for the depression of the freezing-point, however, show that the molecular or ionic concentration was increasing gradually up to the end of the experiments. This is especially well marked in

Experiment 28C, where depression of the freezing-point increased from 0.680° (control) to 0.805° (seven and one-half hours). Evidently non-nitrogenous molecules were undergoing hydrolytic cleavage with the production of smaller and more numerous molecules.

We do not have to look far for an explanation of these results. It has been mentioned elsewhere that with apparently the same conditions of diet, the liver of dogs varies markedly in the content of fat and of glycogen and there is also variation in the rapidity with which the latter disappears. With these points in mind a study of the notes taken in various experiments plainly brings out the fact that in those cases where the glycogen disappeared most rapidly as deduced by the decrease in opalescence of the filtrate after heat coagulation, the depression of the freezing-point tended to increase regardless of changes in non-coagulable nitrogen. In the absence of glycogen the depression of the freezing-point was not affected in this manner. Evidently the increased depression of the freezing-point occurred in greatest part at the expense of the hydrolysis of glycogen, the latter being transformed into smaller molecular compounds, such as maltose, lactic acid, etc.

Concerning lipolytic changes, it becomes more difficult to determine what part these processes are playing in the whole general autolytic change, since there is no way of visually following the transformation as is the case with glycogen. Increased acidity in the autolytic mixture may be the result of the hydrolysis of fats or equally well of the carbohydrates. It therefore is of the utmost difficulty to decide to what process is due the increased acidity as determined by phenolphthalein. From the fact that in a majority of the experiments there occurred a gradual increase in acidity (phenolphthalein) associated with no simultaneous changes in reaction to dimethylaminoazobenzene, it seems reasonable to consider that the augmented acidity was not brought about by increase in acid phosphates since dimethylaminoazobenzene would react to such change; but rather to a formation of acids of the fatty acid type to which the latter indicator is not sensitive.

In this connection emphasis must be laid upon the results of the two experiments in which ethyl butyrate was added to the autolytic mixture. The pronounced acceleration of autolysis which occurred evidently as the result of the formation of butyric acid in the mixture cannot fail to have but one significance. Given

a cell in which as the result of increased lipolysis from some reason or other fatty acids are being produced in excess, their presence will markedly stimulate nitrogenous autolysis. The fat and fatty acids content of supposedly normal cells vary within very wide limits. This is a factor which must be reckoned with in the consideration of general or even nitrogenous autolysis. Whether the augumented autolysis is a result of the catalytic action of the hyrodgen ions of the butyric acid or whether the same relationship exists between the lipolytic autolyses and the decomposition of protein substances, is hard to decide.

From this somewhat cursory discussion it becomes evident that at the time when the cell becomes removed from its circulation, hydrolytic changes are set up with varying degrees of rapidity; the character of these changes is dependent upon the condition of the cell at the time. The reaction of the fluids bathing the protoplasm (if the protoplasm is considered to be neutral) is an important factor as shown by the many investigations upon the effect of acidity and alkalinity upon autolysis. The results recorded here plainly indicate however that changes in reaction which most nearly simulate those which can occur in the living cell do not alter the autolytic rate so markedly, if they do at all, as where stronger acids and alkalies are employed.

In the majority of cases only the nitrogenous autolysis has been studied. As it has been indicated, if carbohydrates are present in the cell, amylolytic autolysis will also occur; lipolytic autolysis probably is as constant as the nitrogenous process. Either one of the three types of autolysis may occur without the other. Probably all three originate when general autolysis begins. That one process influences the others and that the products of the autolytic hydrolyses (lactic acid, fatty acids, etc.) markedly influence, per haps augments the others (*e. g.,* nitrogenous autolysis) are facts rapidly being brought into prominence. Further study in this direction should lie in attempts to test the effect upon autolysis of a single type, *e. g.*, nitrogenous, by setting up simultaneously in the mixture amylolytic or lipolytic autolysis; this would also include the effect of autolytic products, upon the rate of all three types of autolysis.

## CONCLUSIONS.

1. Under certain conditions, general autolysis does not begin immediately upon the removal of the organ from its circulation.

This latent period is more apt to be present in those cases in which the tissues have been temporarily cooled on account of the use of a cold saline diluent or in which the percentage concentration of the inorganic salts (calcium or potassium), of the tissues have been changed by dilution with a sodium chloride solution. The presence of blood and absence of fats and of glycogen in the cells act as important factors in prolonging the latent period.

2. Attempts to produce an alkaline reaction (phenolphthalein) in the tissue resulted negatively. Solutions of disodium hydrogen phosphate and of sodium bicarbonate when added to the liver tissues gave a mixture which was acid to phenolphthalein and no effect upon autolysis was apparent.

3. The addition of antiseptics—chloroform and toluol—markedly decreased the rate of autolysis. Ordinary light produced no effect.

4. Ethyl butyrate when added to the tissue became hydrolysed into butyric acid; the formation of this acid in the mixture caused a decided acceleration in the autolytic rate. The acidity of a solution of dihydrogen sodium phosphate failed to produce a similar result.

5. The figures for the changes in the depression of the freezing-point, non-coagulable nitrogen and reaction of the autolytic mixture do not parallel one another. In some experiments a marked increase in the depression of the freezing-point was unaccompanied by augmentation of non-coagulable nitrogen.

6. General autolysis is the sum total of proteolytic, amylolytic and lipolytic factors. Each of these autolytic factors may proceed alone for a time; the rate of one is decidedly influenced by the presence or absence of the others. The acid products which are the result of amylolytic (lactic acid) and of lipolytic (higher fatty acids) autolysis, exert a pronounced augmentative effect upon the commencement and rate of nitrogenous autolysis.

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# THE INFERIOR LONGITUDINAL BUNDLE AND THE GENICULO-CALCARINE FASCICULUS. A CONTRIBUTION TO THE ANATOMY OF THE TRACT-SYSTEMS OF THE CEREBRAL HEMISPHERE.

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Ever since Burdach's time, the most external of the three sagittal layers which surround the descending and posterior horns of the lateral ventricle and which form the deep boundary of the central white matter of the temporo-occipital lobe, has been known as the inferior longitudinal bundle and considered as being composed essentially of association fibres uniting the cortex of the occipital lobe with that of the temporal lobe. More recently Sachs has proposed the term *stratum sagittale externum* for this layer of fibres and the latter denomination has gradually superseded the old one in the more modern text-books on the anatomy of the brain. But, by whatever term this mass of fibres may have been designated, the majority of observers have at all times been unanimous in regarding it as an association tract. We do not intend to analyze here the views held by the different anatomists; this being our fourth contribution to this particular chapter of nervous anatomy and an exhaustive review of the literature of the subject having figured in our original monograph[1] on the central optic or geniculo-calcarine fasciculus in 1906. We will content ourselves with recalling that Burdach's conception of the inferior longitudinal bundle has, with certain modifications of a purely anatomic order bearing upon details of morphology, relationship, etc., been shared by Arnold, Sachs, Déjerine, von

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[1] Nouvelle Iconographie de La Salpêtrière, 1906, No. 1, p. 103 and No. 2, p. 178.

Monakow, Obersteiner, Schellenberg, Edinger, Schaffer and others.

Flechsig was the first to oppose on the basis of a well-established anatomic principle, the sense of the classic doctrine regarding the physiologic character of Burdach's bundle. As the result of his researches upon the embryology of the central nervous system, more particularly with reference to the period at which the various nerve-tracts become invested with myelin, he was led to contend in 1895 that the inferior longitudinal bundle is made up exclusively of projection fibres derived from the optic thalamus (inferior segment of the lateral nucleus and main nucleus of the pulvinar) and terminating in the occipital lobe, more particularly in the visual area. After emerging from the optic thalamus, the fibres of this tract are intermingled with others having the same source and destined to the olfactory area and Ammon's horn, and with still other fibres coming from the internal geniculate body and optic thalamus and coursing to the temporal lobe and to the auditory sphere. Flechsig's doctrine soon gained hearty support and the later contributions of Probst, Niessl-Mayendorf, Redlich and others brought it abundant confirmation.

Within the last five years, a few authors (Starokolitzki, Weber) have arisen as pacificators to adjust the ominous differences between the old and the new School and have taken the very safe stand of ascribing to the inferior longitudinal bundle a mixed character, i. e., they claimed that it contains both projection and association fibres.

We were not able to view thus the constitution of the aforenamed tract and favored entirely the new doctrine which proclaims it a purely projection fibre-system. But there our task could not end, as there still remained wide differences between Flechsig's followers as regards the exact source, course, termination and physiologic significance of the total mass of fibres which go to make up the inferior longitudinal bundle.

Personally, we believe that all the constitutent fibres of the inferior longitudinal bundle are of the projection variety, but hold that this bundle represents not one but several individual tracts comprising both corticifugal and corticipetal fibres and that its constitution varies from one level to the other. Our main object has been, and still is, to isolate from the great mass of fibres which compose the inferior longitudinal bundle, a certain

contingent of appreciable magnitude, and to clearly demonstrate its existence as a perfectly well-defined anatomic entity. The perfect autonomy of this fasciculus was revealed to us in the course of our researches upon the anatomy of the brain pursued in the laboratory of our teacher, Pierre Marie, at the Hospice de Bicêtre, Paris. We had occasion to systematically examine by means of serial sections eight cases of cerebral softening with involvement, to a greater or lesser extent, of the constituent fibres of the inferior longitudinal bundle. In the majority of the cases, the lesions were those characteristic of sensory aphasia (lesion of the supramarginal and angular gyri and of the bases of the first and second temporal convolutions). In one case, we had the exceptional good fortune of having to do with a strictly cortical patch of encephalomalacia extending over a considerable antero-posterior area without implication of the deep sagittal layers. Our results were constant. We found that a significant proportion of the longitudinal fibres of Burdach do not take their origin from the occipital lobe but from some anterior level, as they were always seen to degenerate caudad, i. e., behind the seat of lesion, and furthermore, that their source is not from the cortex of the temporal lobe (thus eliminating at once the possibility of their being association fibres), as these fibres were not affected by lesions limited to the cortex and subcortical substance of this lobe. In one case the entire occipital cortex and subcortex were destroyed and in the depth of the lobe one fasciculus was discernible and relatively intact, it was Burdach's inferior longitudinal bundle, which, at this level, constitutes likewise the external sagittal stratum. The only conditions under which we observed the degeneration of the inferior longitudinal bundle in the occipital lobe were: (a) the direct section of the deep sagittal layers at anterior levels, and (b) the existence of lesions of the lenticular nucleus, the external geniculate body and adjoining portion of the optic thalamus. In judging of the integrity or implication of this contingent of the inferior longitudinal bundle, it is with intent and purpose that we choose the occipital lobe as the field of decision, as we have ever and still deem it indispensable to make ourselves clear regarding the exact proportion of inferior longitudinal fibres which we wish to identify under the name of central optic or geniculo-calcarine fasciculus. Ambiguity creeps in unnoticed, and misinterpretation, while a pardonable offense, is one which is often extremely difficult to

expose. We have already had to seriously contend with the pernicious effects of misquotation and are therefore anxious, even at the cost of repetition, to obviate all possibility of further misconstruction. This preliminary explanation is all the more important owing to the laxity with which the terms "inferior longitudinal bundle" and "stratum sagittale externum" are used synonymously. We have from the very outset insisted upon the fact that the term tract or fasciculus should be restricted to the designation of a bundle of nerve-fibres coursing over an appreciable distance and the territory of which remains fairly well defined throughout. The word stratum has a much wider range of application and implies little more than mere regularity of disposition of a great mass of nerve-fibres at any one point. That in the occipital lobe the distinction between these terms may have but little significance, we readily admit, but it is all otherwise in the temporal lobe, and especially in its middle portion where the retrolenticular segment of the internal capsule comes into view. At this point, indeed, the external sagittal layer contains both corticipetal and corticifugal projection fibres, it likewise harbors a certain number of association fibres. Still farther forward, the external sagittal layer is traversed by the congregating fibres of the anterior commissure, it becomes blended below the sphenoidal horn with the temporal segment of the cingulum and laterally with the innermost fibres of the fasciculus uncinatus. So that it becomes evident on all hands, that the stratum sagittale externum of Sachs varies in its constitution from one level to the other, that in the temporal lobe it differs materially from the stratum sagittale externum of the occipital lobe, and that, taken as a whole, it does not correspond to the classic description of the inferior longitudinal bundle.

What we desire to clearly establish is that the external sagittal layer of the occipital lobe, the inferior longitudinal bundle such as it exists in this lobe, is composed exclusively of projection fibres. For us, this layer represents the corticipetal complement of the occipital corona radiata; its constituent fibres take their origin from the external geniculate body and terminate in the cortex bordering upon the calcarine fissure. In order to avoid useless errors of interpretation we proposed for this contingent of projection fibres the name of "central optic" or "geniculo-calcarine fasciculus"; the latter term being more in harmony with the nomenclature recently introduced by Edinger, and

which, on account of its simplicity and anatomic significance, is fully deserving of speedy and universal acceptation.

We cannot, in this connection, dwell at any length upon the facts brought out in our previous publication, regarding the true character of the inferior longitudinal bundle. We shall have abundant occasion in giving a detailed description of three additional corroborative cases of cerebral softening, to refer to many facts already signalized in our first monograph, to emphasize some and to elucidate others. But before we proceed with the actual study of these cases, it would be well perhaps to reproduce here our original conclusions regarding the inferior longitudinal fasciculus. We transcribe literally from our article in the *Nouvelle Iconographie de la Salpêtrière* (1906, No. 2, p. 215):

(1) There exists a nerve-tract, the component fibres of which occupy in the temporal lobe, partly the external, partly the internal sagittal layer, and which, in the occipital lobe, constitute almost the whole of the external sagittal layer. This tract, which represents the corticipetal corona radiata of the occipital lobe, takes its origin from the external geniculate body and terminates in both the upper and lower lips of the calcarine fissure, but more particularly in the latter. We propose for this bundle of fibres, the name of "central optic fasciculus" or better still that of "geniculo-calcarine fasciculus."

(2) This tract should be differentiated from the association fibres which constantly invade its territory. If for the sake of simplicity, usage will have it that all fibres which merely traverse a nerve-tract form part of it, we shall say that the inferior longitudinal bundle of the classic authors comprises: (a) the central optic fasciculus, and in addition (b) a certain number of association fibres.

(3) However extensive a lesion of the occipital lobe may be, a normal aspect is resumed at the level of the anterior temporal region, and we do not recognize the existence in man of the long association fibres of classic writers.

Recently, in a very interesting and instructive article, Adolf Meyer[2] brings forth additional data of unquestionable significance in demonstrating the correctness of Flechsig's view, that the external sagittal layer, or marrow, as he calls it, is constituted solely

[2] Transactions of the Association of American physicians. Twenty-second Session, 1907, Volume XXII. Philadelphia, 1907.

by projection fibres derived from the basal ganglia and coursing for the most part to the occipital lobe, particularly to the calcarine cortex. But Meyer falls into error when he attributes to Flechsig the designation of these fibres by the term "geniculo-calcarine tract." We have already seen that this author regards the optic thalamus as the starting point of the external sagittal layer; prudent and circumspect he does not grant the entire domain of this layer to the fibres destined to the visual area, wherein he differs materially from Meyer, but includes the fibres going to the temporal lobe, more particularly to the auditory and olfactory areas. I believe that I may be credited with having introduced the term "geniculo calcarine fasciculus" and I am sure that I did not employ it as a synonym for the external saggital layer in its entirety, but for its occipital segment only. Meyer makes it a point to dwell upon a case which, in his opinion, incidentally serves to correct a claim raised by me that retrograde degeneration does not occur and that its appearance is produced by a lesion in the lenticular region. He refers to a lesion which consists of a destruction of the posterior end of the calcarine area and an undermining of the more anterior parts of the temporo-occipital base far into the fusiform gyrus, from occlusion of the posterior cerebral artery. The actual softening reaches far into the optic radiations beyond the lateral angle of the ventral segment and into the height of the dorsal segment and it destroys completely the posterior end of the lateral radiation. In keeping with this the external geniculate body is practically empty; only the most dorsal radiations are preserved as a compact bundle; the rest are almost reduced to nothing. The entire ventral portion which makes the temporal détour is degenerated. No lenticular lesion accounts for the degeneration of the geniculo-calcarine tract.

In the first place, I wish to correct in my turn the author's interpretation of my statements concerning retrograde degeneration. I have not only never maintained that it does not occur but have even related two instances in which it had been personally observed.[3] What I have tried to do was merely to point out the too great laxity with which retrograde degeneration is invoked in order to easily account for otherwise unclear degenerative pictures and the danger of doing so when discussing in-

[3] Nouvelle Iconographie de La Salpêtrière, 1906, No. 6, p. 573. Nouvelle Iconographie de La Salpêtrière 1906, No. 2, pp. 185–188.

sufficiently established fibre-systems. In the second place, in describing one of my original cases, I attributed a zone of sclerosis situated in the inferior part of the vertical segment (frontal section) of the external sagittal layer and which could be distinctly followed throughout the temporo-occipital lobe, to a destructive lesion of the lenticular nucleus, and there is no question in my mind about the correctness of this interpretation; the sclerotic field emerges from the lower angle of a completely destroyed lenticular body, and from the inner border of this nucleus, the fibres, although atrophic, stain relatively well and can be seen to curve backward and mesially towards the external geniculate body.

I am not of those who believe that the degenerative sclerosis of a given tract must necessarily always be explained by the same factor or group of factors. Lesions vary greatly in different cases as regards both their actual extent and duration. Meyer's contention that in the first case published by him (case of idiocy with total destruction of the parietal, temporal and occipital lobes of the left hemisphere, with the exception of the posterior part of the calcarine cortex including the tip of the occipital lobe), the geniculo-calcarine tract appears in pure culture seems to me inadmissible. The voluminous stratum of fibres which figures in the three plates devoted to the illustration of this case, contains, in my opinion, other fibres besides the geniculo-calcarine; fibres destinated to the first temporal convolution and to the mesial convolutions of the temporal lobe, to the gyrus hippocampus in particular. The fact that there is no temporal cortex to receive some of them is not unmistakable evidence that all of these fibres are coursing to the calcarine cortex. In fact, the same remark could, with perfect reason, be made regarding the mesial occipital cortex; there is too little of it left to harbor the great mass of relatively healthy geniculo-calcarine fibres present, and therefore to explain the persistence of this tract *en masse*. Moreover, I do not believe it indispensable that both the beginning and the end of a tract be intact in order that it may persist, but that it will do so if its nucleus of origin is intact and the tract itself is not directly involved in the greater part of its course. If it were otherwise, we would see, in Meyer's case, a far less voluminous stratum of corticipetal fibres; being given that an appreciable portion of the calcarine area is destroyed. It is even remarkable that retrograde degeneration has not, being given

that this case is one of long standing, made its appearance in this particular instance. I am of the opinion that in Meyer's most instructive case, in the same way that a large number of geniculo-calcarine fibres are preserved despite their destination to a no longer existing segment of the calcarine cortex, so exist likewise in this persisting stratum of corticipetal fibres, a certain proportion of fibres coursing to a destroyed temporal cortex. The fibres simply terminate abruptly in the peri-focal sclerotic zone without having reached their anatomo-physiologic end-station.

Let us now take up systematically the study of the three new cases of cerebral softening referred to before and which seem to us to integrally confirm our original conclusions regarding the external sagittal layer of the occipital lobe.

Case I. Tracnard. Left cerebral hemisphere. (Pl. I) Patch of softening involving the supramarginal gyrus, the base of the first temporal convolution, the whole of the angular gyrus and the adjoining portion of the second occipital convolution.

A section carried through the occipital region at a point about one centimeter behind the splenium corporis callosi shows that the lesion has extended deeply into the white matter and destroyed all the structures bordering upon the superior wall and the upper two-fifths of the lateral wall of the ventricle. On section through the splenium, it is seen that the lesion has excavated practically the whole of the supramarginal gyrus and the first temporal convolution at their point of fusion, sparing the cortex, however, so that a mere shell of cortical substance replaces the former convolutions. The process here again extends as far as the ventricular lining in the area corresponding to the upper half of the lateral wall of the ventricle, which at this point shows decided dilatation. The tapetum and sagittal layers are therefore completely destroyed in their upper segment. More anteriorly, the lesion rapidly diminishes, becoming limited to the lower border of the supramarginal gyrus and the upper border of the first temporal convolution in the depth of the Sylvian fissure. Sections passing through the hemisphere at a point one and five-tenths centimeters behind the pulvinar of the optic thalamus reveal no appreciable foci. Small patches of recent softening are also noted along the superior border of the hemisphere, involving at some points the mesial cortex, at others, the subcortex, of the paracentral lobule and base of the superior frontal convolution; but the latter lesions do not interest us as they have no bearing upon the question under consideration and cannot, moreover, lend any element of confusion.

The first section illustrating this case (Pl. I, Fig. 1) is taken from the anterior part of the occipital lobe. The lesion at this level destroys entirely the angular gyrus and the second occipital convolution at about their point of fusion, penetrating deeply and reaching almost to the

stratum calcarinum which stretches over the prominence (calcar avis) caused by the dipping in of the calcarine fissure. The ventricle is prematurely closed (symphysis ventriculi). The Gennari streak can be seen with unusual distinctness. The softening has destroyed the tapetum, the internal and external sagittal layers, corresponding to the dorsal or upper half of what may be termed the lateral segment of these structures. It will be seen that owing to the closure of the occipital horn, the deep layers have practically but a vertical extent and that they are divisible into a mesial and a lateral segment, between which the tapetum intervenes. In the lower part of the section and going outward from the bottom of the calcarine fissure, we can distinguish several layers regularly disposed: (1) a broad band completely degenerated which represents the tapetum, (2) the internal sagittal. layer or inner optic radiation of Flechsig, derived from the occipital cortex and coursing to the pulvinar of the optic thalamus. It is moderately and diffusely degenerated, owing, in part, to the presence of fibres derived from the lateral convolutions of the occipital pole which are themselves undermined by the softening, and, in part, to its close proximity to the lesion at this level. (3) The external sagittal layer, which in this region is constituted essentially by the geniculo-calcarine tract. The ventral segment of this tract is practically normal, as it has not been involved at any point in its course through the more frontal regions. (4) Closely investing the geniculo-calcarine fasciculus externally and almost blended with it, a narrow band may be seen on close inspection; it is distinctly degenerated and may be followed with the external sagittal layer into the depth of the lingual lobule. This outermost layer contains association fibres derived from the lateral convexity and coursing to the lingual lobule. It is thus made up of fibres which form part of the association bundles known as Wernicke's perpendicular occipital fasciculus and Vialet's transverse fasciculus of the lingual lobule. From the regularity of its disposition one would almost be tempted to describe a *stratum sagittale extremum occipitale.* It is not the first time that I see the deep association fibres of the occipital lobe assume this layer-like disposition, and this fact amply suffices, in my opinion, to explain the many difficulties encountered by the earlier writers in their attempts to define the character of the external sagittal layer. It shows once more the perplexingly intimate relationship between projection and association fibres.

Von Monakow illustrates in his work[4] the occipital degeneration in a case of cortical hemianopsia. The lesion, situated in the interparietal fissure, almost completely destroys the upper segment of the angular gyrus and the contiguous portion of the superior parietal convolution, dipping down to the ventricular ependyma of the superior wall of the occipital horn. The drawing shows a degeneration of the entire external sagittal layer (which the author calls the inferior longitudinal bundle), so that a degenerated ring practically encircles the ventricular horn. The degenerated fibres must therefore pursue a vertical course and can only

[4] Von Monakow-Gehirnpathologie p. 752. Taken from Nothnagel's Specielle Pathologie u. Therapie, IX Band, Wien 1905.

Plate I

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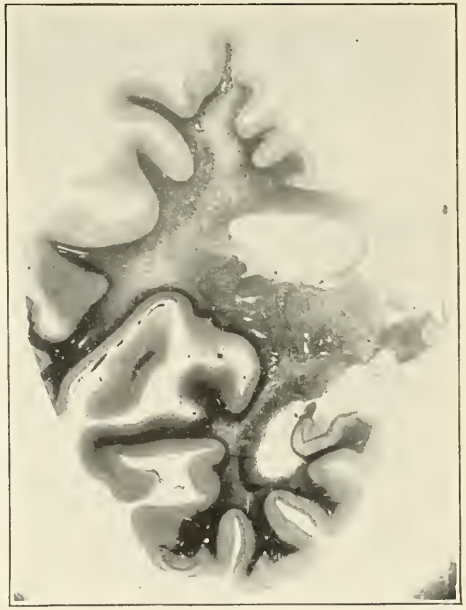

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represent the association fibres of the region. We know indeed from the direction of the constituent fibres of the external sagittal layer, that it is impossible for a lesion limited to the superior convolutions of the parieto-occipital convexity to determine a secondary degeneration of the total mass of its fibres. It can only react upon the fibres of its dorsal segment. It thus becomes evident that in von Monakow's case, the degenerated fibres do not form part of the external sagittal layer, properly speaking, but that they simply closely invest it externally; a conclusion, moreover, which one would readily deduce from a careful study of the drawing. It is well to recall, in this connection, that von Monakow is among those who regard the external sagittal layer as an association tract, and it may further be stated, that the same author does not recognize the existence of Wernicke's vertical occipital fasciculus. This combination of factors largely suffices to explain von Monakow's interpretation of the degenerative picture in his case. It seems to me, however, that he has by this very instance furnished a most convincing demonstration of the existence of Wernicke's bundle. It is because von Monakow's case closely resembles ours, particularly with regard to the occasional development of an extreme sagittal layer of association fibres, that we have thought it useful to insert right here this extrinsic discussion.

The next section (Pl. I, Fig. 2) is one through the anterior part of the splenium of the corpus callosum, near the point where it lodges anteriorly the body of the fornix. The splenium shows a very considerable degeneration of its central portion. The descending horn of the lateral ventricle is appreciably dilated. The lesion has already retroceded in great part and is now confined to the edges of the Sylvian fissure, destroying the superior border of the first temporal convolution in the depth of the fissure, and the outermost segment of the inferior border of the supramarginal gyrus. Very small foci of softening may be seen in the subcortex of the paracentral lobule. There is no longer any actual implication of the deep sagittal layers. The tapetum is very thin and greatly degenerated along the lateral ventricular wall. The corona radiata of the parietal lobe is easily distinguishable, and microscopically, it may be seen to send many fibres to, or else receive the same from, the paracentral lobule. Corresponding to the temporal lobe, three strata can be differentiated outside the ventricular wall: the tapetum, the internal and the external sagittal layers. A point especially worthy of consideration, and one upon which I have previously laid much stress is, that opposite the deep substance of the first temporal convolution, there occurs a gradual transposition of the constituent fibres of both sagittal layers; that is to say, the fibres of the external sagittal stratum are pressed inward towards the ventricular wall and crowded against the lower pole and lateral border of the sphenoidal prolongation of the caudate nucleus, while the fibres of the internal sagittal layer pass outward and above the former, occupying both the external and internal sagittal layers. This interchange of domain is a slow but steadily progressive one, beginning posteriorly at a point which corresponds approximately to the termination of the fissure of Sylvius, and continuing as far forward as the level of the pulvinar of the optic thalamus. There

is no section in my possession which illustrates this point as clearly as that actually under consideration. We note, between the ventricular wall and the bottom of the Sylvian fissure, a broad zone of degeneration which occupies, above, the territory of both the external and internal sagittal layers; it then extends obliquely downward and outward, encroaching less and less upon the internal and occupying more and more the external sagittal layer, until it reaches a point opposite the parallel fissure, where it is seen to cross obliquely the thickness of the external sagittal layer, normal at this point, and to wend its way towards the internal layer. Bearing in mind the extent of the lesion in the occipital lobe, it is evident that this broad degenerated band contains, before all, the thalamic radiations which have been intercepted in their course from the calcarine and other areas of the occipital cortex to the optic thalamus. Only a small proportion of geniculo-calcarine fibres have been severed, and even retrograde degeneration could not account for the marked degenerative sclerosis observed at this point in the external sagittal layer. Moreover, it must be stated that the case is not one of long standing, and not one, therefore, likely to determine a very appreciable degree of retrograde degeneration. Furthermore, as we shall see later, this degenerated area disappears about the pulvinar and dorsal nucleus of the optic thalamus, the anterior corpus quadrigeminum and the internal geniculate body. No appreciable degeneration can be followed to the external geniculate body, nor is this nucleus the seat of any atrophy. I have always maintained that the external sagittal layer of the temporal lobe differs materially from that of the occipital lobe, and that it is erroneous to look upon the external sagittal layer throughout, as a structure of unvarying character, as an anatomo-physiologic entity. This section clearly demonstrates that in the temporal lobe the external sagittal layer contains something else besides the geniculo-calcarine fibres. We have just seen that it harbors the migrating occipital radiations; in addition, it receives fibres derived from the first temporal convolution and coursing to the optic thalamus and internal geniculate body. I believe that it likewise contains fibres which take their origin from the basal ganglia and go to the mesial cortex of the temporal lobe, more particularly to the gyrus hippocampus. The very particular transposition which takes place between the thalamic radiations and the fibres of the external sagittal layer appears to me to be a most logical process; as they approach their end nuclei (pulvinar and anterior corpus quadrigeminum), these cortical radiations take the shortest route and assume the disposition which will ensure free irradiation into them, crowding back temporarily, so to speak, the other fibres whose connections are situated at more anterior levels.

The following section (Pl. I, Fig. 3) passes through the most posterior portion of the superior frontal convolution, the ascending frontal and parietal convolutions, the middle portion of the temporal lobe, the anterior corpus quadrigeminum, the optic thalamus, the internal geniculate body, the posterior capsule of the external geniculate body, the retrolenticular segment of the internal capsule and the body and sphenoidal horn of the lateral ventricle. Small patches of encephalomalacia are

again observed in the cortex and subcortex of the superior border of the hemisphere, involving the base of the superior frontal convolution and having determined an appreciable pallor of the corona radiata and of the deep substance of the supra-Sylvian convolution (projection and association fibres). At this level, the temporal lobe appears normal save for the presence of areas of degeneration. The deep substance of the first temporal convolution is appreciably degenerated owing to the interruption, in more posteriorly situated regions, of the association fibres which terminate in its cortex. The lower part of the retrolenticular segment and the sublenticular segment of the internal capsule show a very decided degree of degenerative sclerosis. It is seen that this degenerated area forks when it reaches Wernicke's field, one division containing the radiations of the destroyed parietal convolutions continuing upward outside the lamina medullaris externa of the optic thalamus to terminate in the dorsal nucleus of this body; the other containing the radiations of the first temporal convolution passing horizontally inward through the superior portion of Wernicke's field, above and behind the external geniculate body, to finally irradiate into the substance of the internal geniculate body, which shows a very appreciable degree of discoloration and atrophy. Likewise to be noted, is the discoloration more particularly of the middle layer of the anterior corpus quadrigeminum, resulting from involvement of the radiations derived from the visual area.

Case II. Can.... (Pl. II and III).

Extensive patch of softening from obliteration of the left Sylvian artery. The lesion, one of long standing, destroys the deep substance of the Sylvian border of the base of the ascending parietal convolution, the inferior gyri of the island of Reil, practically the whole of the supramarginal gyrus, the most anterior portion of the angular gyrus, the greater part of the first temporal convolution and its accessory superior Sylvian lobule (*circonvolution temporale profonde* of Déjerine) and the deep substance of the posterior two-thirds of the second temporal convolution. A small focus of softening is also found in the deep substance of the anterior extremity of the gyrus hippocampus. A section taken at the level of the descending horn of the lateral ventricle (Pl. II, Fig. 3) shows that the lesion has peculiarly respected, in great part, the cortex, but widely destroyed the white matter, dipping down at several points practically to the lateral ventricular wall and severing along almost its entire vertical extent the deep sagittal layers, save at the infero-external angle. Corresponding to the middle portion of the ventricular wall, it will be seen that although the softening does not extend as deeply at this point, there remains but a sclerotic area absolutely devoid of medullated fibres, as this very territory is itself involved at slightly posterior levels.

The first section (Pl. II, Fig. 1) is taken from the posterior part of the occipital lobe. This lobe, it will be remembered, is absolutely free from lesion. At once it is seen that the degenerative sclerosis is strictly confined to the domain of the external sagittal layer. Close inspection will show that it forms practically a complete ring, although evidently very irregular in contour, having somewhat the shape of the letter L, enclosing

the tapetum and optic radiation which at this point are normal. The section passes immediately behind the tip of the occipital horn, which in this case is prematurely closed, so that the apposed ventricular walls simply form a vertical septum upon which border, on either side, the tapetum, the internal and external sagittal layers. The tapetum in the actual section may be recognized as a deeply-staining line extending vertically through the middle of the area marked out by the degenerated band. On either side of it a broader and less deeply-stained layer can be made out which represents the optic radiation of cortical derivation; it is especially distinct along the lateral margin of the vertical segment and in the short transverse inferior segment of the field under consideration. The external sagittal layer is so sharply isolated as the result of secondary degeneration that it would seem to have been traced with the point of a pin. It is constituted essentially by the fibres of the geniculo-calcarine fasciculus, which at more anterior levels have been practically totally wiped out by the softening above described. This section shows that in the occipital lobe, these fibres are much more abundant in the ventral segment of the external sagittal layer than in its dorsal segment, which can be seen to consist of a mere line, describing a sort of conic figure as it caps over the tapetum and then descends along its mesial aspect and just without the stratum calcarinum previous to its irradiation into the cortex of the cuneate lip of the calcarine fissure. I have had occasion several times to observe a massive degeneration of either the ventral or dorsal segment of the occipital external sagittal layer, but this is the first time that I see this layer degenerated in its entirety in an otherwise perfectly healthy occipital lobe.

The following section (Pl. II, Fig. 2) passes through a more anterior part of the occipital lobe. Symphysis of the occipital horn here again obtains, but the formation of the forceps major of the corpus callosum lodged in the deep substance of the cuneus is plainly visible. Its continuation inferiorly as the tapetum is still to be distinguished owing to its deeply-staining reaction, and appears as a dark line extending at first vertically downward, then curving mesially beneath the bottom of the calcarine fissure and penetrating into the depth of the lingual lobule. To its outer side, and within the outermost completely degenerated band, the internal sagittal layer of cortical radiations can be made out; it is diffusely degenerated owing to the influence of retrograde changes as we are nearing the seat of lesion. Finally, we observe again the extreme sclerosis of the external sagittal layer (geniculo-calcarine fasciculus), which is almost as sharply defined as in the preceding section. Yet, it is to be noted, that both the superior and inferior transverse segments of this sclerotic band are not strictly confined to the domain of the external layer. Above, the degenerated fibres are seen to closely invest the forceps major, passing therefore through the internal sagittal layer; below, the broad degenerated band of geniculo-calcarine fibres destined to the lingual lobule is interrupted, so to speak, at two points, by normal fasciculi. The more lateral one contains but a small number of fibres and truly belongs to the geniculo-calcarine tract; it has simply escaped involvement in its long course through a partly softened, partly sclerotic

Plate II

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territory. The more mesially situated healthy fasciculus is much more considerable and does not belong to the geniculo-calcarine tract, but is formed of cortical optic radiations. Careful study will show, indeed, that to the inner side of the lateral normal fasciculus, the degenerated line no longer follows the external layer, but sinks into the internal layer close to lingual segment of the tapetum, and through this channel irradiates into the lower lip of the calcarine fissure, the deep substance of which may be seen to be appreciably degenerated in consequence. So that, if it may be said that the lateral or vertical segment of the occipital external sagittal layer is constituted essentially by corticipetal fibres, or more accurately, by the geniculo-calcarine fibres, differing thus very materially from the corresponding segment of the internal sagittal layer which contains before all corticifugal fibres, or the thalamic radiations of the occipital cortex, the same differentiation cannot be made with regard to the dorsal and ventral mesially-directed segments of these layers. The fibres of the geniculo-calcarine tract situated at both the superior and inferior angles of the lateral segment of the external sagittal layer, in order to reach their field of irradiation, i. e., the cortex bordering upon the calcarine fissure, naturally follow the shortest course which is via the internal sagittal layer. They necessarily mingle with the optic radiations and even crowd the latter aside on arriving close to their point of arborization, so that in the depth of the cuneate and lingual lobules, the internal layer is occupied more particularly by the terminating than by the originating fibres. This feature, moreover, is the rule throughout the cerebro-spinal axis. We have already seen a similar disposition at the level of the optic pulvinar between the terminating thalamic radiations and the emerging geniculo-calcarine fibres.

The pallor of the deep substance of the lateral convolutions, more particularly of the angular gyrus and second occipital convolution, is due, in great part, to the interruption at slightly anterior levels of a large number of association fibres. The peculiar cribriform appearance of the subcortex of the second occipital convolution is a common finding, in my experience, in regions which are themselves intact but which have been long deprived of their afferent medullated fibre-systems. Microscopically, Wernicke's vertical occipital bundle is clearly demonstrable opposite the second and third occipital convolutions, and the same may be said of Sachs's *fasciculus proprius cunei* which is plainly appreciable even in this figure; the mesially-directed dorsal segment of the degenerated geniculo-calcarine tract separating it from the forceps major of the corpus callosum.

The next section (Pl. II, Fig. 3) has already been considered in the general description of the lesion of this case. There is complete destruction of the supramarginal gyrus and first temporal convolution and extensive undermining of the second temporal convolution. At the infero-external angle of the ventricle, the deep sagittal layers can be plainly recognized and ascend for a very short distance along the lateral ventricular wall, terminating above in a field, which, although bordering directly upon a cavitary focus, contains a fair number of well-stained fibres which have peculiarly escaped destruction. This island of healthy

fibres belongs, in great part, to the geniculo-calcarine tract and is identical with the normal lateral fasciculus described in the preceding section in connection with the external sagittal layer. Below this field, the sagittal layers are totally degenerated and seem continuous with the equally totally degenerated subventricular segment of the internal sagittal layer. Microscopically, it is seen that this sclerosis extends mesially into the depth of the gyrus hippocampus; so that it may be safely assumed that at this level, the external sagittal layer contains a certain number of fibres which go to the mesial convolutions of the temporal lobe *via* the subventricular segment of the internal sagittal layer. The corresponding segment of the external sagittal layer is relatively normal and well-developed; we are of the opinion that in this region there enters into its formation, aside from the geniculo-calcarine tract, a large number of fibres derived from the mesial convolutions, more particularly from the gyrus hippocampus. A certain proportion of these may perhaps follow an inverse course, going to the same region from the basal ganglia.

A section taken at the level of the pulvinar of the optic thalamus (Pl. III, Fig. 4) shows the extreme discoloration and atrophy of this body, resulting from interruption of the great majority of the occipital radiations. The anterior corpus quadrigeminum being connected with the thalamus at this point, it is readily seen that the secondary degenerative sclerosis traverses the entire breadth of the pulvinar passing directly into the superficial and middle zones of the colliculus, and that it may even be followed into the quadrigeminal commissure as far as the mesial line. The only region of the pulvinar which contains normal-staining fibres is that situated at its infero-external angle; it corresponds to the external retro-geniculate area and forms the lower part of what is classically known as the triangular field of Wernicke. The fibres which constitute this normal area take their origin, for the most part, from the external geniculate body. The remaining mesial segment of the lower border corresponds to the internal retro-geniculate field; it is exceptionally degenerated and shrunken as it receives the cortical radiations of the first temporal convolution, which, as we have already seen, is destroyed in the greater part of its extent. The lesion at this point involves the Sylvian border of the ascending parietal convolution, spares the contiguous portion of the island of Reil but undermines its temporal portion, completely destroys the first temporal convolution and sinks into the deep substance of the second temporal, whence it extends more deeply at one point and completely severs the external and internal sagittal layers. The latter focus exactly replaces in this section the sclerotic field observed in the previous section at the infero-external angle of the sphenoidal horn. The normal fibres which then lay immediately above it are now seen to trend mesially towards the lower pole and lateral border of the sphenoidal prolongation of the caudate nucleus. These fibres, it will be remembered, we attribute to the geniculo-calcarine fasciculus. Below the seat of lesion, the external sagittal layer appears diffusely degenerated owing to the presence, at more anterior levels, of additional linear extensions from the main area of softening. The tapetum and internal sagittal layer are likewise appreciably degenerated. The intense degeneration of the retro-

Plate III

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and sublenticular segments of the internal capsule is fully explained by the interruption of all the cortical radiations derived from the occipital lobe, the first and second temporal convolutions, the insular region and the supra-Sylvian gyri. Retrograde degeneration of the internal and external geniculate fibres undoubtedly contributes its share towards rendering this sclerosis so extreme. Without the sagittal layers, the marked discoloration of the deep substance of uninvolved convolutions reveals the widespread connections of the association fibre-systems, the interdependence of supposedly distinct association tracts. In the temporal lobe, the pallor of the subcortex extends beneath the sphenoidal horn into the depth of the gyrus hippocampus, thus showing that the inferior segment of the cingulum reacts to lesions of the lateral convexity. This involvement of the cingulum serves at the same time to delimit the subventricular segment of the external sagittal layer, a projection-path with which it is so intimately blended in the normal state that it is impossible to distinguish between them. This very intimacy of relationship has unquestionably been a most potent factor in inducing the earlier writers to regard the ventral portion of the external sagittal layer as an association bundle. In the parietal lobe, likewise, the degeneration of the fasciculus arcuatus extends high up into the ascending frontal convolution, sharply defining the base of the corona radiata against the short subcortical association-loops. The degeneration even affects the fronto-parietal or superior segment of the cingulum, and despite the unfortunate tear in the upper part of the section, the pallor of the deep substance of the gyrus fornicatus is distinctly appreciable. There exists a considerable atrophy of the body of the corpus callosum and of the fornix. A last feature of interest is the sharpness of outline of the anterior and posterior brachia of the quadrigeminal bodies resulting from the extreme discoloration of the superficial and middle layers of the anterior colliculus.

The following section (Pl. III, Fig. 5) passes through the most posterior portion of the external geniculate body which is seen to be decidedly atrophied, shrunken and discolored, especially in its mesial segment, as the result partly of retrograde degeneration and partly of prolonged functional inactivity. Nevertheless, the lateral limiting field of Wernicke is abundantly supplied with healthy nerve-fibres except in its superior portion, where it is traversed by the dorsal fasciculi of the geniculo-calcarine tract in their course from the geniculate body to the vertical segment of the external sagittal layer. That these bundles have undergone retrograde degeneration, there can be no doubt. Their course through the retrolenticular segment of the internal capsule is easily followed. Immediately beneath this degenerated zone, several obliquely-directed healthy fasciculi are seen to abandon the external sagittal layer and to wend their way mesially and upward towards Wernicke's field; they are the very fibres which, in the preceding section, were seen to collect about the caudate nucleus. They have simply been displaced upwards in their forward course and pass gradually into the lowermost field of the internal capsule. Similarly, it will be noticed that the next lower segment of the external sagittal layer, previously occupied by a focus of softening, now a thoroughly sclerotic area, tapers down to a fine

filiform process as it passes upward and inserts itself between the caudate nucleus and the overlying healthy fasciculi, which it thus displaces upward and laterally towards the external capsule and into the retrolenticular division of the internal capsule. This section, I consider admirably suited, owing to this rare alternation of preserved and degenerated fasciculi of geniculo-calcarine fibres, to demonstrate the peculiar détours which these fibres follow in reaching the external sagittal layer after their emergence from the external geniculate body. All these features were incorporated, however, in my first description of the geniculo-calcarine tract. A fact to be noted, is that the healthy fasciculi coursing towards Wernicke's field comprise a larger number of fibres than the sum total of the fibres which escaped involvement and which form the normal field observed at the infero-external angle of the sphenoidal horn. This reappearance of normal-staining medullated fibres in the domain of the retro- and sublenticular segments of the internal capsule steadily increases as we consider more and more anterior levels, and this fact, coupled with the existence of a fairly well-supplied field of Wernicke, clearly shows that there is a partial restoration of the degenerated geniculo-calcarine tract before it reaches its nucleus of origin, the external geniculate body. In other words, ascending, cellulipetal or retrograde degeneration has not extended over the entire length of the central segment of the divided nerve, but has become arrested at a variable distance from its trophic centre. The linear degeneration of the remainder of the external sagittal layer has become more distinct. The degeneration of the internal sagittal layer is well-marked and involves more particularly the constituent fibres of Türck's fasciculus, of which that layer at this level is largely composed. The retrolenticular segment of the internal capsule is less widely degenerated than in the preceding section but the sclerosis is more intense. The fronto-parietal corona radiata which was previously relatively well-preserved, now presents an appreciable degeneration more especially of its lateral field (*stratum sagittale externum fronto-parietale* of Anton and Zingerle); its mesial division, on the contrary, remains practically normal. This latter segment of the fronto-parietal corona radiata has received several names: "corona radiata of the caudate nucleus" (Meynert); "callosal fasciculus coursing to the internal capsule" (Wernicke, Gratiolet, Foville); "reticular zone of the corona radiata" (Sachs); "stratum sagittale internum" (Anton and Zingerle). This last designation appears to us to be the most appropriate for this layer which contains fibres belonging to both projection and commissural systems. The commissural fibres are fewer in number, pursue a vertical course (on a frontal section) and simply represent the callosal radiations going to and from the island of Reil and the first temporal convolution; so that the predominating and therefore distinctive element of the fronto-parietal internal sagittal layer is the projection-fibre. Sachs has always maintained this view and demonstrative cases have been published by Anton-Zingerle[5] and by me[6]. It is

[5] Anton Zingerle: Bau, Leistung und Erkrankung des menschlichen Stirnhirnes, pp 155–160, Graz 1902.

[6] Nouvelle Iconographie de La Salpêtrière, 1906, No. 2, pp. 200–201.

this very structure, it will be remembered, which Déjerine and others have attempted to isolate as a long association tract "the occipito-frontal fasciculus." If such were the true nature of the internal layer of the fronto-parietal corona radiata, I should certainly expect to find it appreciably compromised in this case in which there is complete destruction of the deep sagittal layers bordering upon the lateral wall of the descending horn of the lateral ventricle and interruption therefore of the great majority of the fibres of occipital derivation. On the contrary, we find it remarkably intact. It remains so throughout the series of sections, despite the fact that for some considerable distance anterior to the actual level, the supra-Sylvian convolution continues to be the seat of lesions which encroach upon the proximal field of the corona radiata and which have determined a marked degeneration of the entire posterior limb of the internal capsule. It thus becomes evident that the internal sagittal layer differs materially from the external layer as regards the source and connections of its constituent fibres. I have already expressed the opinion that this layer is in relation with the mesial surface of the fronto-parietal lobe, more particularly with the gyrus fornicatus, and that its fibres are mainly corticipetal, taking their origin probably from the anterior tubercle and mesial nucleus of the optic thalamus. There is an appreciable discoloration and atrophy of the dorsal half of the optic thalamus, most marked in the region of the lateral nucleus which is in relation with the parietal lobe. The mesial segment of the thalamus is likewise rather pallid, but it is normally poor in medullated nerve-fibres. Lying directly upon its ventricular surface is seen the ganglion habenulae with its ascending fasciculus, the taenia thalami. The posterior commissure appears very distinctly subdivided into two bundles, of which the superior represents the stem of the pineal gland. The internal geniculate body is markedly atrophic and flattened from above downward; its ventral segment is totally empty, whereas its dorsal segment receives the terminating fibres of the posterior brachium which may also be followed microscopically into the dorsal laminae of the external geniculate body. The degeneration of the parietal and temporal divisions of the cingulum is still distinctly appreciable.

The next section (Pl. III, Fig. 6) differs but very little from the foregoing from which it is separated by only three serial numbers. It is mainly intended to show the appearance of the external geniculate body at the level of its full development. It will be seen that this body has preserved its gross morphology, but that it is decidedly atrophic generally and that its transverse diameter particularly is much reduced. On closer study, it appears, so to speak, bisected in its vertical extent; its mesial segment, totally discolored, is more slender, shorter and does not appose itself fully to the outer segment, but seems displaced upwards. The lateral segment presents the typical laminated arrangement and is limited externally by the triangular field of Wernicke which is rapidly gaining in number of medullated nerve-fibres. The sublenticular division of the internal capsule is likewise more abundantly supplied. The aspect of the external geniculate body is typical and there can be no doubt that in the production of this marked discoloration and atrophy, retrograde degener-

ation has been chiefly concerned; but it must not be forgotten that the softening is one of old date and that the geniculo-calcarine tract has been intercepted at a relatively proximal distance from its nucleus of origin, much nearer the external geniculate body than the calcarine cortex. We have thus present the two main elements which determine retrograde degeneration, chronicity and proximity of lesion. This appearance is rare, I believe, in lesions even of long standing limited to the occipital lobe. I have often seen under such circumstances, a generalized atrophy of the external geniculate body but without appreciable concomitant discoloration; the proximal portion of the geniculo-calcarine tract would be reconstituted in front of the lesion though it would likewise present a distinct atrophy. The atrophy of both the geniculate body and its tract, I attribute to the unquestionable influence of functional inactivity.

Case III. Col.... (Pl. IV, ).

Central softening of the right temporal lobe from obliteration of the sphenoid branch of the middle cerebral artery. The lesion, one of only four weeks' standing, extends from the tip of the temporal pole in front to about the level of the anterior border of the splenium of the corpus callosum behind. The patch is irregularly pyramidal in shape, with its base directed forward and its apex inserted in the tapetum of the descending horn of the lateral ventricle below the point where the caudate nucleus curves forward to pass into the sphenoidal horn. The lesion spares at all points the cortex and the immediate subcortical zone. Anteriorly, at the level of the anterior border of the external geniculate body (Fig. 1), the softening destroys all the deep white matter situated to the outer side of the sphenoidal horn, i. e., the deep substance of the three temporal convolutions and the fusiform lobule; it spares entirely the gyrus hippocampus. It is limited above by the lenticular nucleus which is itself totally undisturbed, internally by the ventricular wall, below and to the outer side by the subcortex of the temporal convolutions. The destruction has been so extreme that a cavity with jagged walls is all that remains of the centrum of this region. The occipital lobe is absolutely intact.

This case, like the others, has been studied by means of serial sections from the temporal to the occipital pole. The temporo-parietal sections have been stained according to the Weigert-Pal method; the entire occipital lobe has been subjected to osmic acid impregnation.

A section taken at the level of the full development of the external geniculate body (Pl. IV, Fig. 1) shows that all that remains of the white matter of the temporal lobe is the subcortical system of short association fibres. These fibres stain relatively well and the Baillarger streak is noticeably well-preserved in the cortex of the first temporal convolution. The external geniculate body has retained its normal configuration but appears atrophic, it is shrivelled up generally and flattened from side to side; its myelin-lamellae though well-stained are pressed closer together and present numerous angular deflections. At more posterior levels, the inner segment of the external geniculate body is not only atrophied but even discolored and no longer apposes itself fully to the outer segment, thus producing the peculiar bisected appearance al-

ready observed in the preceding case. Nevertheless, in this as in all other sections passing through the external geniculate body, it is seen that Wernicke's field is unusually well-supplied with normal-staining medullated fibres. From the upper part of Wernicke's field a considerable number of them can be followed outward into the peri-focal sclerotic zone; they represent, for the most part, geniculo-calcarine fibres which have not yet undergone retrograde degeneration. The lower part of Wernicke's field, however, is occupied by several decidedly degenerated fasciculi which belong to Arnold's temporo-thalamic bundle, the fibres of which course from the temporal pole to the optic pulvinar. At slightly anterior levels, a fairly broad and totally sclerosed fasciculus can be followed from the sublenticular segment of the internal capsule, above the external geniculate body and the optic tract, into the outermost division of the pes pedunculi; it represents Türck's temporo-cerebellar tract. In the actual section the lower field of the posterior limb of the internal capsule is diffusely but distinctly degenerated. The external and extreme capsules are markedly degenerated and the discoloration may be followed upward into the subcortex of the parietal convolutions as high as the superior hemispheral border. Beneath the sphenoidal horn, the transverse segment of the external sagittal layer is partly preserved, but it consists at this level especially of the fibres of the cingulum and its relative integrity may be explained by the fact that the gyrus hippocampus is intact. Below this layer the subcortex is decidedly discolored and the degeneration extends very distinctly into the most mesial portion of the gyrus hippocampus where it occupies the domain of the cingulum. The corresponding portion of the tapetum contains a few deeply-stained fasciculi which seem to emerge from the hippocampal septum and which advance beyond the infero-external ventricular angle.

The internal sagittal layer of the fronto-parietal corona radiata is practically intact and in this particular series of sections appears unusually well-defined. It will be noticed, however, that the adjacent subependymal zone is distinctly degenerated, and that the discoloration extends into the hook-shaped peri-ventricular portion of the corpus callosum and then mesially along the lower border of the callosal commissure; showing that anterior temporal lesions react upon the trunk of the corpus callosum. An appreciable degeneration is observed in the mass of fibres (dorsal thalamic bundle) which course along the superior border of the optic thalamus and join the contiguous portion of the internal capsule. The area of degeneration extends downward outside the lamina medullaris externa of the optic thalamus and is probably related to the lesion of the fibres derived from the hippocampal and uncinate gyri. I have previously referred to the fact that important connections are established between the optic thalamus and the gyrus fornicatus, or first limbic convolution, through the dorsal thalamic bundle and the internal sagittal layer of the fronto-parietal corona radiata; it is possible that this bundle serves to establish similar connections with the gyrus hippocampus, or second limbic convolution, by means of fibres which traverse the temporal corona radiata and the internal capsule. A very distinct pallor

is noticeable in the domain of the internal geniculate body and in the deep portion of the anterior corpus quadrigeminum.

The sections intervening between this one and that next to be described show a very decided atrophy and discoloration of the mesial segment of the optic thalamus which we know to be in relation with the temporal convolutions. The area of softening becomes more and more circumscribed, abandons the subcortex of the first temporal convolution and recedes from the lower hemispheral border, forming a quadrangular focus limited to the deep sagittal layers which border upon the lateral ventricular wall. The posterior and retrolenticular segments of the internal capsule appear diffusely degenerated throughout the series of sections, and this degeneration, which is too widely distributed to correspond exclusively to the passage of the temporal cortical radiations into the optic thalamus, evidently represents in part the temporal fibres which reach the corpus callosum via the external and internal capsules.

A section passing through the splenium of the corpus callosum (Pl. IV, Fig. 2) shows that the lesion is now confined to that portion of the tapetum and internal sagittal layer situated immediately beneath the descending segment of the caudate nucleus. A distinct degeneration is observed in the central portion of the splenium and extends upward along the lower segment of the forceps major. The internal sagittal layer of the parietal corona radiata is still readily discernible and apparently normal. In the temporal lobe, the external sagittal layer has become reconstituted practically in its entirety, whereas the internal sagittal layer is massively degenerated, appearing as an exceptionally well-defined sclerotic band which courses mesially below the sphenoidal horn and disappears in the depth of the gyrus hippocampus where it blends with the area of degeneration of the cingulum. The ventral portion of the tapetum like the external sagittal layer is in good part restored, but peculiarly enough, both these structures are far less preserved than would appear from the macroscope study of this section and from comparison with the markedly discolored internal sagittal layer. Microscopically, it is seen that the external sagittal layer, its ventral segment more particularly, contains but few normal fibres. For the most part, the fibres are coarsely fragmented or reduced to irregularly beaded shreds, and the whole layer is stuffed with granular bodies. That such an altered fibre-mass should still exhibit relatively good staining qualities would seem at the first glance difficult to explain; but it must not be forgotten that we have to do with a softening of only four weeks' duration, which is hardly sufficient to determine a sclerosis appreciable with the Weigert-Pal method. The fact that other tracts, the internal sagittal layer, for instance, already show distinct discoloration, is not contradictory of the above statement. We know that normally, the various tracts differ very considerably in their susceptibilities to staining reagents as regards both rapidity and intensity of reaction; likewise, we know that pathologically, there are appreciable variations in the degree of resistance offered by the individual tracts to degenerative sclerosis.

Here again, outside the vertical segment of the external sagittal layer a well-defined zone of discoloration exists, which can be followed upward

Plate IV

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into the subcortex of the parietal convolutions and mesially beneath the sphenoidal horn into the depth of the gyrus hippocampus; showing that the cingulum derives a fair proportion of its constituent fibres from the convolutions of the temporal convexity. It should be stated that at this level, the domain of the geniculo-calcarine fasciculus is actually occupied in great part by the focus of softening and that the corticifugal projection fibres derived from the mesial convolutions and inferior border of the temporal lobe course through the external sagittal layer; a fact which contributes materially to the relative staining integrity of this layer.

The Marchi sections through the occipital lobe (Pl. IV, Fig. 3) all show abundant granular bodies. In the anterior portion of this lobe, the granular bodies occupy mainly the ventral segment of the external sagittal layer and the corresponding portion of the tapetum; the internal sagittal layer being practically free. As we consider more and more posterior levels, we note that the Marchi granules gradually ascend through the vertical segment of the external sagittal layer until we reach the occipital pole, when it is seen that they have invaded the whole of the external layer, forming practically a closed ring of granular bodies around the internal sagittal layer and the retroventricular callosal stratum. Throughout the posterior portion of the occipital lobe, the granules are essentially confined to the domain of the external layer, which they thickly beset throughout; but they are far more abundant in its ventral than in its dorsal segment. The tapetum and internal sagittal layer contain at this level but few granular bodies. Outside of the external sagittal layer and corresponding to the subcortex of the occipital convexity, a few stray granules are here and there to be seen, which evidently represent degenerated association fibres derived from the temporal lobe. From the superior and inferior horizontally-directed segments of the external sagittal layer, strings of granules are constantly detached which radiate into all parts of the cortex bordering upon the calcarine fissure. In many places the granules may be followed beneath the Gennari line. In their course from the external sagittal layer to the calcarine cortex, the degenerated fibres pass, in considerable numbers, through the internal sagittal layer.

## RÉSUMÉ AND INTERPRETATION OF THE VARIOUS DEGENERATIVE SCLEROSES AND NUCLEAR ATROPHIES OBSERVED IN ALL THREE CASES.

In the first place as regards the external sagittal layer, we have seen that its occipital portion degenerates from before backward in cases of deep-seated lesions of the temporal lobe. Twice, once with the Weigert-Pal stain and once with the Marchi method, we have found a complete sclerosis of the external sagittal layer in an otherwise perfectly healthy occipital lobe, induced by extensive foci of encephalomalacia limited to the temporal lobe. We must therefore assume that the course of the constituent fibres

of the occipital external sagittal layer is corticipetal. In Case I, in which the softening is confined to the posterior part of the parieto-temporal lobe, we have seen that in the more anterior and normal regions of the temporal lobe, the degenerative sclerosis occupies both the external and internal sagittal layers, but that it is far less voluminous than would be expected from the extensive lesion of the peri-Sylvian convolutions; showing that a fair proportion of the fibres intercepted have become reconstituted in front of the lesion, *i. e.*, that their course must therefore be corticipetal. Under both groups of circumstances then, we have very distinct evidence that the constituent fibres of the occipital external sagittal layer take their origin from some level anterior to that of the pulvinar of the optic thalamus. The actual cases do not permit us to make more definite statements regarding the real source of these fibres, but we have previously demonstrated that anterior temporal lesions limited to the cortex and immediate subcortex determine no appreciable reaction in the domain of the occipital external sagittal layer and that the external geniculate body represents the nucleus of origin of this layer.

We have already sufficiently insisted upon the fact that the external sagittal layer of the temporal lobe is a far more complex structure than that of the occipital lobe and that it is grossly incorrect to regard the one as the unmodified continuation of the other.

The intimacy of relation between projection and association fibres has been a constant feature throughout. Particularly instructive in Case I in which it furnished the motive for comparison of our case with that of von Monakow, this feature was likewise distinctly appreciable in both the other cases. Owing to secondary degeneration, the domain of the external sagittal layer, which, in the normal state, is extremely ill-defined against that of the cingulum in the temporal lobe and that of the bundles of Sachs, Vialet and Wernicke in the occipital lobe, became sharply delimited. The interdependence of the various association tracts is another feature which this series of cases serves to clearly demonstrate. We saw that both divisions of the cingulum, the parietal which courses through the subcortex of the gyrus fornicatus and the temporal which occupies the depth of the gyrus hippocampus, were decidedly affected by lesions of the temporo-parietal convexity; Cases II and III both illustrate this point

very distinctly. The cingulum which is generally regarded as being the great association bundle of the mesial hemispheral region is thus likewise related to the lateral convexity, as it receives from the latter territory a considerable number of fibres. We believe that the parietal segment of the cingulum is in relation with the fasciculus arcuatus and the temporal segment with the fasciculus uncinatus. Again, it was observed in Case III, that the lesion in the domain of the fasciculus uncinatus had determined an appreciable discoloration of the fasciculus arcuatus by means of fibres which course upward through the external capsule. It thus becomes apparent that all the association-tracts of the cerebral hemisphere are more or less interdependent.

The tapetum, *i. e.,* the innermost of the deep sagittal layers of the temporo-occipital lobe, that which borders directly upon the ventricular ependyma, is constituted essentially by the fibres of the corpus callosum of which it is simply the intrahemispheral expansion. It abandons fibres to and receives the same from all the convolutions; these fibres traversing in their course the internal and external sagittal layers more or less at right angles. The callosal radiations of the anterior portion of the temporal lobe reach the trunk of the corpus callosum by coursing through the external and internal capsules; a fact well illustrated in Case III. The external capsule is thus in great part tributary of the callosal system, conveying likewise the callosal fibres of the island of Reil.

The tapetum is totally independent from the internal sagittal layer of the fronto-parietal lobe. The statement of Déjerine and others, that lesions of the temporal lobe react upon this layer, is not borne out by the facts observed in our cases. In both Cases II and III, the greater part of the temporal lobe, including the tapetum, is destroyed, and yet we note the persistence of the fronto-parietal internal sagittal layer which is even exceptionally well-defined. This layer, we repeat, is part and parcel of the corona radiata.

In Cases II and III we observed a massive degeneration of the outer division of the pes pedunculi or ventral segment of the cerebral peduncle. This area, as is well known, is the domain of Türck's fasciculus, the constituent fibres of which are derived from the cerebral cortex and pass into the brain-stem through the sublenticular division of the internal capsule. In Case I, in which

the lesion is practically confined to the parieto-occipital lobe, involving only the base of the first temporal convolution, there exists no appreciable sclerosis in the domain of the pes pedunculi. The study of these cases shows that the parietal and occipital lobes do not send any fibres into the ventral portion of the brain-stem as was formerly supposed. Türck's fasciculus is derived solely from the cortex of the temporal lobe.

In Cases II and III, in which all connections between the basal ganglia and the calcarine cortex have been destroyed, we note an extreme discoloration and atrophy of the optic pulvinar and anterior corpus quadrigeminum and an atrophy of the external geniculate body. In Case II, owing to retrograde degeneration, this body presents, in addition, a marked discoloration. In all three cases there exists, in keeping with the involvement of the first temporal convolution, a decided atrophy and degeneration of the internal geniculate body; a relation first established by von Monakow and subsequently confirmed by Mahaim, Déjerine and others.

In Cases II and III in which the greater part of the temporal lobe is destroyed, there exists a marked atrophy and degeneration of the mesial nucleus of the optic thalamus; in Cases I and II, in which there is likewise considerable implication of the parietal lobe, we note in addition, a distinct discoloration and atrophy of the dorsal segment of the lateral nucleus.

## CONCLUSIONS.

1. The external sagittal layer of the temporo-occipital lobe is composed essentially of projection fibres; its occipital segment is constituted by the geniculo-calcarine fasciculus, the fibres of which take their origin from the external geniculate body and terminate in both the upper and lower lips of the calcarine fissure, but more particularly in the latter.

2. The various association tracts of the cerebral hemisphere are all more or less interdependent and represent topographic subdivisions of one main fibre-system rather than distinct and individual bundles.

3. The tapetum is formed essentially by the fibres of the corpus callosum.

4. The internal sagittal layer of the fronto-parietal lobe is part and parcel of the corresponding portion of the corona radiata and

probably serves to establish the connections between the gyrus fornicatus and the optic thalamus.

5. Türck's bundle takes its origin exclusively from the cortex of the temporal lobe. The parietal and occipital lobes take no part in the constitution of the pes pedunculi or ventral segment of the cerebral peduncle.

6. The existence in the brain of man of an occipito-frontal association bundle is totally inadmissible.

In terminating, I desire to acknowledge my indebtedness to my teacher, Pierre Marie, who has kindly supplied me with the material utilized for this publication.

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# PRIMARY CARCINOMA OF THE VERMIFORM APPENDIX, WITH THE REPORT OF TWO CASES.

By C. W. LOUIS HACKER, M. D.

The present general interest in primary carcinoma of the vermiform appendix, a disease at one time of interest only to the pathologist but now attracting also the attention of the surgeon, appears to warrant the publication of the observations herein detailed. The literature of the subject has been fully covered by recent writers and only a brief summary of it will be given in this report.

Attention was first called to the subject in 1882 by Beger who made a clinical as well as histologic diagnosis. The second case was reported by Stimson in 1896, since when the number has steadily increased. The increase in the number of reported cases is in all probability due to the now almost universal custom of examining microscopically all material removed at operation. I have collected from the literature ninety-five undoubted cases in which a histologic diagnosis was made. These are reported by Burman, Baldauf (3), Barrow, Battle, Becker, Beger, Biggs, Brandt (2), Coons, Cullingworth and Comer, Driessen, Eccles, Elting (2), Giscard, Goffe, Grünbaum, Hammond, Harte (9), Harte and Willson (2), Hurdon, Hessberg, Jessup, Jones and Simmons, Kaufman (2), A. O. J. Kelly (5), Kelly and Hurdon (3), Korte (3), Kudo (4), Landau, LeConte, Lejars, Letulle and Weinberg (8), Lubarsch, Mason and Rhea, McBurney (2),

McCosh, McWilliams, Moschcowitz (3), Mosse and Daumic, Myerstein, Neri, Norris, Patel, Regling, Rolleston, Schrumpf, Stimson, Walsham, Warthin, Weber, Weinberg, Weir, Weil, White and Zaaijer (6).

Of the above cases, eight were examined at this laboratory. These, reported by Elting, Baldauf and Harte I shall describe briefly.

I. *Elting*—Mrs. L., thirty-six years of age, had shown no symptoms of appendicitis. A bilateral salpingo-oophorectomy was performed for chronic pelvic inflammation. The appendix, apparently normal, was removed, as a matter of routine, but on microscopic examination was found to be the seat of a small alveolar carcinoma, one cubic centimeter from the proximal end. The lumen was everywhere obliterated.

II. *Elting*—The patient was a male, eighty-one years of age. The appendix was removed at autopsy on an individual whose death was due to pulmonary tuberculosis and cardiac disease. The clinical history presented no symptoms of disease of the appendix. The appendix was free from adhesions and measures five and five-tenths centimeters in length. The distal portion of the organ for a distance of three and five-tenths centimeters was much enlarged (three centimeters in diameter). Projecting from the convex surface of the enlarged portion at about its middle point and opposite the mesenteric attachment was a mass of yellowish green, translucent gelatinous substance. On section through the middle of the organ the lumen was found to be filled with a similar gelatinous material. Sections showed colloid carcinoma.

III. *Baldauf*—Mr. H., thirty-eight years of age, presented symptoms of appendicitis the day before the operation. The appendix was adherent beneath the umbilicus, and was considerably thickened and covered with fibrin. The lumen was patent and the mucosa injected and the seat of small foci of necrosis. The anatomical diagnosis was acute appendicitis and the microscopic diagnosis carcinoma simplex with ulceration, acute appendicitis and periappendicular suppuration.

IV. *Baldauf*—Mr. B., twenty-three years of age, had had three attacks of appendicitis, the last beginning five years before the operation. The appendix was adherent and the lumen obliterated. Microscopic examination revealed an alveolar carcinoma replacing the mucosa and invading the muscularis and, on the mesenteric side, subserous tissue also.

V. *Baldauf*—A girl, eight years of age, presented symptoms of appendicitis, severe in character, two days before the operation. The appendix was surrounded by an inflammatory mass and contained a small amount of pus in its distal portion which was thickened and indurated and surrounded by granulation tissue. The proximal half was normal and the entire lumen patent. The anatomical diagnosis was chronic appendicitis with partial organization of a periappendicular abscess; the microscopic examination revealed an alveolar carcinoma involving the submucosa.

VI. *Harte*—Miss M. A., fourteen years of age, presented a history of acute appendicitis. The appendix was swollen and measured six and

five-tenths centimeters in length. The external surface was covered in places by a fibrino-purulent exudate. All coats were thickened and the mucosa presented numerous punctate hemorrhages and small areas of ulceration. At a distance of two cubic centimeters from the proximal end was a slight thickening affecting, particularly, the mucosa. The anatomical diagnosis was acute diffuse and ulcerative appendicitis with fibrino-purulent periappendicitis. The microscopical examination showed an alveolar carcinoma in addition to the acute inflammatory condition.

VII. *Harte*—Miss W. P., thirteen years of age, had a definite history of appendicitis. The appendix was markedly thickened and firmer than normal. To its peritoneal surface were attached numerous firm fibrous tags and one cubic centimeter from the tip was an area of necrosis with perforation. The lumen was patent and the mucosa thickened and studded with minute hemorrhages. An anatomical diagnosis was made of chronic appendicitis with acute exacerbation, gangrene and perforation. The microscopic examination revealed in addition a carcinoma of the appendix.

VIII. *Harte*—Miss K. B., twenty-one years of age, presented a clinical history of appendicitis. The appendix throughout the distal two-thirds was considerably thickened and at the distal extremity had numerous firm tags attached. At the junction of the middle and proximal thirds the lumen was obliterated and the distal end was considerably thickened and filled with a greenish faecal mass. The mucosa of the distal two-thirds showed spots of hemorrhage. Microscopic examination showed in addition to the chronic obliterative appendicitis a primary carcinoma.

In addition to these eight cases observed in this laboratory, I have met with two others during the first year of my service as assistant in surgical pathology. In neither of these was there a history of appendicitis, the appendix in each instance being removed in the course of an operation on other organs. Brief summaries of the clinical histories and pathological examinations follow:

*Case I.* Records of the Bender Laboratory, Surg. Path. No. 07-557. Clinical History—Mrs. J. M. S., thirty-one years of age, married, entered the Albany Hospital (service of Dr. A. H. Traver) on April 21, 1907. Her family history was uneventful and her past history offered no evidence of disease of the appendix. Since her last menstruation (February 28, 1907) she has had a dull pain in lower abdomen which increased in March and April. Physical examination revealed an old laceration of the perineum and uterine cervix and a purulent discharge from the cervical canal. At the operation on April 22d, the uterine cavity was curetted and the perineum and uterine cervix repaired. On account of a past history of eclampsia a laparotomy was performed to ligate the Fallopian tubes. The right ovary being cystic, a salpingo-oophorectomy was performed. The appendix was removed as a matter of routine. Convalescence was uneventful and the patient has improved in health since the operation.

*Pathological Examination.*—The specimen consists of an appendix five cubic centimeters in length. The peritoneal surface is normal. The distal half of the organ is thickened and indurated and twice the diameter of the proximal end, the latter being normal. The lumen is patent throughout and the mucosa normal. Anatomical diagnosis was chronic appendicitis.

*Microscopic Examination*—The mucosa is intact but between the glands of Lieberkühn occasional small areas of newly formed connective tissue are present. Beneath the mucosa are occasional irregular areas of lymphoid tissue. At one side and entirely within the submucosa are areas of densely packed cells, the outlines of which are indistinct but which are of the epithelial type. The nuclei of these cells are round, deeply staining and show no evidence of mitosis. The smaller areas have a tubular arrangement. No direct communication between these areas and the epithelium lining the glands of Lieberkühn or covering the mucosa, is present. Throughout the submucosa and musculature considerable granulation tissue is present. There is a marked infiltration of leucocytes which at one point in the submucosa form a distinct abscess. The peritoneal coat is oedematous and contains a few leucocytes. The blood vessels are engorged. Microscopic diagnosis—carcinoma simplex of the vermiform appendix. Chronic appendicitis.

*Case II.* Records of the Bender Laboratory, Surg. Path. No. 07-698. Clinical History—Mrs. M. C., thirty-nine years of age, married, multipara, entered the Albany Hospital (service of Dr. J. A. Sampson) on May 7, 1907. The family history is of little importance. Past history reveals no symptoms suggesting appendicitis. *Present illness*—Ten days before admission to the hospital patient had an acute attack of pain in the lower abdomen associated with fever. No diagnosis was made and the findings at the operation, ten days later, failed to disclose any cause for the symptoms. The diagnosis was made on admission of weakened pelvic floor with retroflexed uterus. At the operation on May 10th a retroflexed uterus was fixed. As a matter of routine the appendix was examined and as a small nodule was felt the appendix was removed. The pelvic floor was then repaired. The convalescence was uneventful. The patient has been in excellent health since the operation.

*Pathological Examination.* Specimen consists of an appendix measuring six centimeters in length and having a mesentery attached. About five millimeters from the tip it is bent upon itself beyond which is a constriction due to a fibrous band passing around it. Between the distal end and the mesentery a distinct band of adhesions is present. At the junction of the middle and distal thirds is another constriction. The blood vessels of the peritoneum are engorged. On section the lumen of the distal third is found to be obliterated by scar tissue. The remaining mucosa is normal in color but slightly thickened. Anatomical diagnosis—chronic appendicitis with partial obliteration.

*Microscopic Examination.* Sections are from that portion of the appendix which is bent upon itself. No lumen is present and the mucosa and submucosa are apparently replaced by very cellular young connective tissue which at one place extends down to the musculature. The remain-

ing submucosa is composed of a fat and dense connective tissue. Close to what appears to have been the lumen are numerous areas of densely packed polyhedral cells, the nuclei of which are large, round and contain a fair amount of chromatin. No mitotic figures are present. The protoplasm is small in amount and no intercellular substance is visible. About these areas a small amount of connective tissue is present. The internal muscular layer contains numerous small, round and epithelioid cells. The blood vessels of the peritoneum are dilated. Microscopic diagnosis—carcinoma simplex of the vermiform appendix; chronic obliterative appendicitis.

These two cases with the three reported by Harte give a total of five primary cancers of the appendix observed in this laboratory during the past four years (Sept. 1, 1904 to Sept. 1, 1908) in a series of 1298 appendices removed at operation and examined microscopically. The proportion of cancer is therefore as 1 to 260 or approximately four-tenths of one per cent. If to these five are added the five reported by Elting and Baldauf, we have ten carcinomata observed in one laboratory in a period of twelve years in the routine examination of 2033 appendices, a proportion of 1 to 203, or practically one-half of one per cent.

From a review of these cases little that is new can be presented. The symptomatology if symptoms be present, is that of either acute or chronic appendicitis. The vermiform appendix having no striking function to perform, the presence of a neoplasm in the absence of inflammation would not produce symptoms pathognomonic of a physiological disturbance. The only symptom in the early stage might be pain due to pressure upon the sensory nerves or to obstruction of the lumen. The vast majority of cases in which pain was present gave, however, a history of recurrent attacks more characteristic of chronic inflammation than of carcinoma. It is noteworthy that of the thirty-two out of ninety-six cancerous appendices presenting no symptoms and removed at autopsy or during operation for other lesions, only four appeared normal to the naked eye. All others showed macroscopic changes, usually inflammatory in nature, suggesting the advisability of removal. Three of these apparently normal showed on section a chronic obliterative appendicitis in addition to carcinoma. Another argument is therefore offered for the removal, in the course of abdominal operations of every appendix showing evidence of disease.

Age plays a very important role for in youth carcinoma occurs

with greater frequency in the appendix than in any other organ of the body. Of ninety-one cases in which the age is given, the average was twenty-nine and one-tenth years. In females it was twenty-eight and one-tenth and in males thirty and three-tenths years. The youngest was eight and the oldest, eighty-one. One may judge from the following table the frequency with which this disease occurs during the various decades of life.

| | | | | | |
|---|---|---|---|---|---|
| 3.29 | per cent. | during | the | 1st | decade |
| 16.48 | " | " | " | 2nd | " |
| 39.56 | " | " | " | 3rd | " |
| 27.47 | " | " | " | 4th | " |
| 5.49 | " | " | " | 5th | " |
| 4.39 | " | " | " | 6th | " |
| 0.00 | " | " | " | 7th | " |
| 2.19 | " | " | " | 8th | " |
| 1.09 | " | " | " | 9th | " |

Cancer of the appendix occurs more frequently in the female than in the male. Of eighty-eight cases, fifty-four or sixty-one and three-tenths per cent. were in females whereas only thirty-four or thirty-eight and seven-tenths per cent. were in males. A possible explanation may be the greater frequency of laparotomy on the female. About one-fifth of the cancers in women were found accidentally during laparotomy for other conditions.

Numerous observations both clinical and anatomical suggest very strongly that carcinoma of the appendix is secondary to chronic inflammation. While the appendix is an organ which undergoes atrophy this apparently does not predispose it to carcinomatous change. The period of life during which these cases most frequently occur, corresponds to that of chronic appendicitis and not atrophy. Clinically, forty-seven per cent. of the cases presented symptoms of chronic appendicitis but histologically nearly all appendices were the seat of chronic inflammation. In twenty-eight per cent. also an obliterative appendicitis was present.

In this connection Ribbert's theory would appear to offer an explanation of the development of carcinoma in the appendix. In chronic appendicitis the connective tissue changes are most marked about the glands of Lieberkühn so that a portion of the cells might become detached by cicatricial contraction and continue to proliferate; or during obliteration a portion of the mucosa may become included within the scar.

The anatomical diagnosis is usually difficult if adjacent structures are involved or metastatic nodules are present in other viscera. The appendix in twenty-three of eighty-five cases presented a tumor as it lay in the abdomen; in twenty-four the tumor was discovered after removal; in the remainder the tumor was discovered only upon microscopic examination. This emphasizes the importance of examining microscopically every diseased appendix.

The most frequent site at which carcinoma is found is the tip. Of seventy-eight cases in which the location is mentioned it involved in forty-eight the distal extremity.

Carcinoma of the appendix may be of any of the types found elsewhere in the intestines but the spheroidal cell cancer is the most frequent. Of those reported in detail sixty-one and five-tenths per cent. were spheroidal cell, thirty-six per cent. glandular, and two and five-tenths per cent. colloid.

The tumor is usually limited to the mucosa and submucosa. In only thirty of the seventy-eight analyzed did it extend to the subserosa or serosa. Infiltration is apparently along the lymphatics to the mesentery for in six cases it was most pronounced opposite the menenteric attachment and in nine the mesentery was involved.

Metastases are not often found but this may be due to the early removal of the primary growth. Metastatic growths were present in the retroperitoneal lymph nodes in two cases and in the ileo-colic in one. One case died with general metastasis and in one were multiple nodules beneath the peritoneum. The cecum was involved in only two cases.

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# BENDER HYGIENIC LABORATORY.

## Annual Report of the Director for the Year Ending August 31, 1908.

*To the Trustees of the Bender Hygienic Laboratory:*

I have the honor to submit my report for the year ending August 31, 1908.

*The Work of the Laboratory.*—The routine examinations of all kinds are summarized in the following table: no important changes in the character of this work have occurred.

Table I. Routine Examinations Made by the Staff of the Bender Laboratory from September 1, 1907 to August 31, 1908.

| | Albany Hospital. | St. Peters Hospital. | Childs' Hospital and St. Margarets House. | State Department of Health. | City Department of Health. | All other sources. | Totals. |
|---|---|---|---|---|---|---|---|
| Autopsies | 42 | 6 | 2 | ..... | ..... | 84 | 134 |
| Surgical Specimens | 1,043 | 507 | 19 | ..... | ..... | 140 | 1,709 |
| Gen. Bacteriology and Clin. Microscopy | 388 | 92 | 6 | 3,273 | 2,348 | 227 | 6,334 |
| Totals | 1,473 | 605 | 27 | 3,273 | 2,348 | 451 | 8,177 |

*Laboratory courses* for undergraduates of the Albany Medical College have been given as follows:

1. Normal Histology.—Drs. Beilby and Douglas, six hours a week.

2. Pathology and Bacteriology.—Drs. Pearce, Sawyer, Hawn and Doescher, eight hours a week.

3. Clinical Microscopy.—Drs. Hawn, Sawyer and Rulison, two and a half hours a week (Dr. Laird on leave of absence).

4. Surgical Pathology.—Drs. Elting, Hacker and Sibley, two and a half hours a week.

5. Histology and Pathology, in connection with the course in Obstetrics.—Drs. Lipes and Douglas, two and a half hours a week.

6. Anatomy and Pathology of the Nervous System.—Dr. Archambault, two and a half hours a week.

7. Experimental Physiology (Second year).—Dr. Jackson, five hours a week during first half year.

8. Experimental Physiology (First year).—Dr. Becker, two hours a week.

Among those who have availed themselves of the opportunity to work in the Laboratory for considerable periods of time are, Drs. J. A. Sampson of Albany, E. J. Buchan of Chicago, B. F. May of New York City, J. Wingate of Schenectady, W. C. Treder of Syracuse, H. H. Drake of Albany, and Messrs. Nelson Fromm, E. S. Haswell and W. A. Bing of the Albany Medical College, and L. W. Gorham and A. W. Morrison of the Johns Hopkins Medical School and Mr. George W. V. Spellacy of the New York State Department of Agriculture. These have assisted in the routine work of the Laboratory, pursued special lines of study or engaged in research work.

Investigations undertaken during the year are as follows:

1. Hacker, C. W. L., The Appearance of Glycuronic Acid in Certain Conditions of Diminished Oxidation, *Jour. Am. Med. Assoc.*, 1908, L, 252.

2. Beilby, G. E., A Clinical Study of Hypernephroma with Pathological Reports, *Surgery, Gynecology and Obstetrics,* 1908, Sept., 279.

3. Pearce, R. M., The Influence of the Reduction of Kidney Substance upon Nitrogenous Metabolism, *Journal of Experimental Medicine,* 1908, X, 632.

4. Pearce, R. M. and Sawyer, H. P., Concerning the Presence of Nephrotoxic Substances in the Serum of Animals with Experimental Nephritis, *Journal of Medical Research,* 1908, XIX, 269.

5. Sampson, J. A. and Pearce, R. M., A Study of Experimental Reduction of Kidney Tissue with Special Reference to the Changes in that Remaining, *Journal of Experimental Medicine,* 1908, X, 745.

6. Pearce, R. M., The Relation of the Adrenal Gland to Chronic Nephritis and to Arteriosclerosis: An Anatomical Study, *Journal of Experimental Medicine,* 1908, X, 735.

7. Jackson, H. C. and Elting, A. W., Clinical Notes and Physico-Chemical Study of Salt Elimination in the Urine of an Individual with General Oedema of Obscure Origin, Followed by Cure, *The Archives of Internal Medicine,* 1908, II.

8. Pearce, R. M., A Note on the Occurrence of Spontaneous

Arterial Degeneration in the Rabbit, *Jour. of Am. Med. Assoc.*, 1908, LI, 1056.

9. Jackson, H. C., The Effect of Conditions upon the Latent Period and Rate of Aseptic Post Mortem Autolysis during the First Ten Hours, *Journal of Experimental Medicine*, 1909, XI, 55.

10. Archambault, L., The Inferior Longitudinal Bundle and Geniculo-Calcarine Fasciculus.

11. Hacker, C. W. L., Primary Carcinoma of the Vermiform Appendix with Report of Two Cases.

12. Jackson, H. C., Hawn, C. B. and Sawyer, H. P., A Study of Normal Daily Variations in the Physical and Chemical Composition of the Blood in Relation to Normal Opsonic and Phagocytic Indices (in press).

13. Jackson, H. C., Hawn, C. B. and Sawyer, H. P., The Influence of Variations in Osmotic Pressure of Blood and Serum upon Opsonic and Phagocytic Indices (in press).

14. Jackson, H. C. and Baldauf, L. K., A Chemical Study of the Liver during Fatty Transformation (in press).

15. Jackson, H. C. and Hawn, C. B., Note on the Sterility of Living Organs (Dog) (uncompleted).

16. McDonald, E., Sarcoma of the Uterus, with Report of Nine Cases.

17. Elting, A. W. and Tredway, E. E., Hereditary Gangrene in Early Life due to Endarteritis.

18. McDonald, Ellice and Krieger, W. A., Bilateral Tubal Pregnancy, with Report of Two Cases.

19. Hacker, C. W. L., Carcinoma of the Umbilicus.

20. Archambault, L., Contribution to the Anatomy and Pathogeny of Angenesia of the Corpus Callosum.

Of these investigations, the third to sixth inclusive and the eighth, ninth, twelfth, and fourteenth were conducted under grants made to the Director and Dr. H. C. Jackson by the Rockefeller Institute for Medical Research; the first, seventh and thirteenth under similar grants from the Committee on Scientific Research of the American Medical Association.

*Changes in the Staff.*—The changes in the staff this year are quite general. My own resignation takes effect September first, in order that I may accept the Professorship of Pathology at the New York University and Bellevue Hospital Medical College of New York City. Drs. H. P. Sawyer and C. B. Hawn termi-

nate their connection with the Laboratory on August 31st; the former accompanies me to New York to become Instructor in Pathology in the New York University and Bellevue Hospital Medical College; the latter enters general practice in Albany. To one of these vacancies has been appointed M. D. Cronin (M. D., Albany Medical College, 1907); the other has not yet been filled. Dr. C. W. L. Hacker resigned June 1st to enter private practice and has been succeeded by J. L. Bendell (A. B., Yale, 1903, M. D., Albany Medical College, 1907). Dr. T. F. Doescher resigned July 1st to become an assistant to Dr. Albert Vander Veer and in his place has been appointed L. H. Gaus (M. D., Albany Medical College, 1907). R. C. Keigher (M. D., Albany Medical College, 1907) has been appointed Pathological House-Officer by the Board of Governors of Albany Hospital to succeed Dr. W. A. Krieger, who resigned July 1st to accept the position of Pathologist to the Vassar Hospital of Poughkeepsie, N. Y.

*Work of the Past Five Years.*—As this report marks the completion of my five years' service as Director, I append a table showing the activities of the laboratory during this period. This table with that which appeared in my Third Annual Report (1906) represent graphically the work and development of the laboratory since its opening in 1896.

Table II. Summary of Work of Past Five Years, 1903-1908.[1]

| | 1904 | 1905 | 1906 | 1907 | 1908 | Totals | Average |
|---|---|---|---|---|---|---|---|
| Autopsies | 123 | 129 | 120 | 135 | 134 | 641 | 128 |
| Surgical Specimens | 1,003 | 1,271 | 1,471 | 1,617 | 1,709 | 7,071 | 1,178 |
| Gen. Bacteriology and Clin. Microscopy | 2,515 | 2,683 | 2,961 | 5,725 | 6,334 | 20,218 | 4,043 |
| Totals | 3,641 | 4,083 | 4,552 | 7,477 | 8,177 | 27,930 | ..... |
| Laboratory Courses | 6 | 6 | 6 | 8 | 8 | ..... | ..... |
| Publications | 11 | 8 | 17 | 12 | 11 | ..... | ..... |

Worthy of special mention is the development of the Department of Physiological Chemistry under the able direction of Dr. H. C. Jackson. This department, established three years ago, has been of great value in connection with the routine work and has added vastly, as may be seen in the titles of published investigations, to the possibilities of co-operation in research work. Dr. Jackson's relation to the laboratory work, both routine and experimental, has been very intimate and has made it possible to

[1] Each yearly period ending August 31st.

apply to any problem the methods of physiology and chemistry in addition to those of pathology and bacteriology.

I therefore take this opportunity to express my appreciation of the great value to the laboratory of Dr. Jackson's work and also of his very cordial co-operation during the past three years. Moreover I would suggest to your board the appointment of an additional assistant to aid in the further development of this very important aspect of laboratory effort.

*The Bender Laboratory Club.*—This organization continues to be a most important feature of the laboratory life. The guests during the past year were Dr. Warfield T. Longcope, Director of the Ayer Laboratory of the Pennsylvania Hospital of Philadelphia who discussed our newer knowledge of Hodgkin's disease and Dr. Henry A. Christian, Assistant Professor of Medicine at the Harvard Medical School, who presented a general review of recent work on "Experimental Nephritis."

*"Studies from the Bender Laboratory."*—The fifth volume of this laboratory publication will appear at the end of the present year. In the first volume (1904) was incorporated a short sketch of the history of the laboratory together with a list of previous publications under Dr. Blumer's directorship and portraits of the founder and the first director. In this, as in succeeding volumes, all papers published from the laboratory have been reprinted in full and in each also the annual report of the director, summarizing all activities of the laboratory, changes in staff and other items of interest, has appeared. These volumes thus present, in complete form, the work and publications of the laboratory and constitute as well a general history of the institution. They have been so favorably received that it is to be hoped that your board will see its way clear to continue this annual publication.

*Gifts.*—It is a great pleasure to acknowledge the financial support which has been rendered by Drs. Albert Vander Veer, Henry Hun, W. G. Macdonald, Arthur W. Elting, A. H. Traver and C. F. Theisen. These gentlemen have contributed funds which have been used for special assistants in surgical pathology and neuro-pathology, for apparatus, and to a small extent for defraying the expenses of the last volume of "Studies from the Bender Laboratory." To Dr. Henry Hun we are also indebted for a set of lower power lenses for use with the microscope attachment of the projection lantern. This very general assistance, which may be taken as an appreciation of the usefulness

of the laboratory, argues well for its support and development in the future.

Finally, as this report marks the end of my directorship, I wish to express my appreciation of the interest which your board has always shown in the work of the laboratory as well as of your ready co-operation in the development of its activities. The five years during which I have been associated with the Bender Laboratory have been most helpful to me and represent a period of my experience as pathologist to which I will always look back with the greatest pleasure and satisfaction. If, on the other hand, I have helped you, as I sincerely hope I have, to develop the influence of the Bender Laboratory and to advance the spirit of scientific medicine in Albany, there will be the added satisfaction that others than myself have profited by our mutual efforts.

Respectfully submitted,

RICHARD M. PEARCE,

*August* 31, 1908. *Director.*

Robert G. Scherer

# In Memoriam

Robert G. Scherer was born in Albany, N. Y., March 20, 1861, his father being a prominent merchant of that day. His education was obtained in the public and private schools of this city and in his father's store and at the Commercial College he received a thorough business training. Adopting law as his profession, young Scherer at an early age entered, as clerk, the law office of Paddock, Draper and Chester. After several years spent in this office he attended Cornell University and was graduated from Columbia Law School. About 1881 he formed a law partnership with John F. Montignani which continued for some years. On the dissolution of this firm he was associated with J. Murray Downs and Neile F. Towner. In 1884 he married Anna, daughter of James T. Story of Albany, N. Y., and she with one daughter survive him. In 1898 he was appointed Miscellaneous Court Reporter and so well was his work in this position approved by his profession that his reappointment in 1903 was received with entire satisfaction.

As a lawyer Robert G. Scherer was highly esteemed. He appeared frequently at Special Term and in the Appellate Division and Court of Appeals. He was widely known as a counsellor and adviser in matters of public and private business. Few men of his years in so arduous and exacting a profession accomplished more or attained such eminence.

Mr. Scherer was a Republican; a member of the Board of Public Instruction of the City of Albany from 1885 to 1889 and introduced many reforms in the school system; a member of Assembly from Albany County in 1896 and 1897 and Chairman of the Judiciary Committee; and a member of the Committee on Law Reform of the State Bar Association. He was a prominent Mason.

The characteristics that won for Robert G. Scherer social, political and professional prominence were his thoughtfulness, thoroughness and efficiency. He was of a quiet and almost retiring disposition but possessed a charm of manner and cheerfulness of temperament with a natural kindliness of heart that made him always friendly, affable and genial.

Mr. Scherer's admirable qualities were best illustrated by the fact that although his life was filled to overflowing with varied

work and manifold interests connected intimately with his professional and public activities he gave freely of his time and intelligence to the management of the Albany Hospital with which institution he was for many years connected and of which he was a Governor at the time of his decease.

In the encouragement of medical science as in all matters philanthropic, Mr. Scherer manifested the greatest interest. This drew him into heartiest collaboration with Mr. Matthew Bender, the founder of the Bender Hygienic Laboratory for which institution he prepared the constitution and by-laws. He served as President of the Trustees of the Laboratory from February 23, 1904 until his death.

After a lingering illness Mr. Scherer died at his home on Madison Avenue in this city on October 28, 1905 at the early age of forty-four years.

As a tribute of their respect for their late President the Trustees of the Bender Hygienic Laboratory passed the following resolution and placed it upon the minutes.

By the sad and untimely death of Robert G. Scherer, which occurred at his home November 1, 1905, the Board of Trustees of The Bender Hygienic Laboratory lost one of its most valued and faithful members.

Mr. Scherer has been identified with the Bender Laboratory since its inception. As a friend and the attorney of Mr. Matthew Bender, the donor of the Laboratory Building, Mr. Scherer advised with and aided in directing and carrying out Mr. Bender's wishes in the erection of the Laboratory. In securing from the City of Albany the site and in the organization of the corporation, Mr. Scherer took the most active part. He met with us at the organization of the Board June 27, 1905, and has been in continuous service on the Board since—acting as its legal adviser and performing all other duties pertaining to his trusteeship with the deepest interest and fidelity, and we record to-day the expression of the high esteem and regard in which he was held, and our appreciation of his valued services on the Board.

We direct, by resolution, that a copy of this record be mailed to his bereaved family, together with the expression of our deepest sympathy to them in this hour of their great sorrow.

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# WHAT A CITY CAN DO TO COMBAT TUBERCULOSIS.

*Read before the Medical Society, County of Albany, November 25, 1908.*

By JOHN H. PRYOR, M. D.,
*Buffalo, N. Y.*

At the present time there is evidence of a beginning controversy concerning two points in the management of tuberculosis. One is heard claiming an exaggerated decrease in the prevalency and mortality from tuberculosis. The other expresses discontent with the results which have been obtained after some years of discussion and education. Under the circumstances it seems allowable to devote a few minutes to the discussion of certain fallacious conclusions, which have been too generally accepted. The incontrovertible statement that tuberculosis has decreased in prevalency during the last half century has led many to assume that suffering and death due to that disease has diminished. This assumption is false. The death rate has decreased in proportion to the population. It has fallen with the decline in the general death rate and has shown the effects of a recent wave of sanitary reform beyond all parallel in human history. A study of statistics reveals the fact that the decline in the relative mortality from tuberculosis was as marked and continuous as at present for at least two decades before the cause of the disease was known or any direct methods of prevention were introduced. Remember that the general death rate has decreased and that about one-eighth of all reported deaths are due to tuberculosis and that percentage is maintained. The proportion of deaths to one thousand of the population is much smaller than it was twenty-five years ago, but still about one-eighth of the population succumbs to tuberculosis. It is claimed that the death rate from tuberculosis relative to the population has decreased in the last thirty years from thirty to forty per cent., but the general death rate has also decreased from forty to fifty per cent. in many cities.

The points which I wish to emphasize are these: We must not be misled and be benumbed by apathy by the reiteration of the claims that there is less tuberculosis in the world and fewer deaths from that cause. There is to-day more tuberculosis, more suffering and more deaths than at any time in the past and the number of the afflicted gradually increases with the population, but not in proportion to the increase in population. It is still the chief scourge of humanity and bids fair to maintain its preeminence unless cancer takes the lead which the constantly increasing number of deaths from that disease makes possible.

In New York State in 1897 tuberculosis in all forms claimed about 13,500 victims; in 1907, 16,567 deaths were due to that cause. If we estimate approximately the number of deaths for the year 1908 on a basis of the death returns for the first nine months of that year it seems probable that the seventeen thousand mark will be reached. Of course the actual number of deaths due to tuberculosis would be somewhat larger if the opportunities for error and possible false returns are considered. Thus in ten years the actual number of deaths has increased about one-fifth in spite of a constantly increasing number of recoveries and arrests and a prolongation of life caused by improved care and efforts at prevention. It was estimated there were fifty thousand consumptives in New York State in 1897. And if the method of computation is correct there are about seventy-five thousand now. If the loss to the State by a curable and preventible disease which destroys the lives of about two-thirds of the population during the years of greatest productivity was estimated at fifty millions then it must be fully seventy millions now. The ghastly procession to the grave has been joined by about four full regiments of the afflicted mortals who have been given none or inadequate protection and are offered pathetically slight chance for relief.

The governors of the States met again in Washington in December to receive reports, hear the results of investigation and consider once more the loss and the waste of natural resources. Unquestionably the chief waste of wealth from preventible causes in New York State is due to the destruction of men and women from unnecessary disease and death at the time of life when they are best able to produce wealth

and provide for the education and the development of character of those dependent upon them.

But the time has not yet arrived when the public will naturally demand protection from disease and the destructive agencies of life.

To keep up the present death rate from tuberculosis about one in every one hundred and twenty-five of the population must be afflicted at some time with tuberculosis and also be doomed. Apparently the necessity for attacking tuberculosis has not diminished, but increased. We find no excuse for inactivity, apathy or neglect. But the question will be asked why has the campaign of education and the methods of prevention not been more successful, and a brief consideration of some of the salient reasons seems appropriate and may be justly demanded by the public. Tuberculosis is known as a communicable and infectious disease, but no radical attempt to treat it as such has been attempted, unless a spasmodic effort in Italy in the sixteenth century might be so designated. Alleged prevention has been largely a delusion. We must admit that it is ineffective at the present time. Much of the blame must fall upon health departments who have been delinquent and disregarded the tragic importance of a disease which claims so large a share of all deaths. It has been impossible to know where the victims of tuberculosis were located. Activity is displayed when an epidemic prevails but a constant menace of much greater importance has been tolerated by the guardians of public health who have failed to recognize or shirked responsibility. The time is not far distant when the public will be obliged to make this problem their own and insist upon measures so plainly needed. The medical profession will have to be aroused or controlled, responsibility must accompany privileges and power. The old cry of lack of funds may palliate negligence for a time but it must be largely the fault of those who are qualified to teach and lead that the sinews of war are not obtained. Not only have methods of prevention failed because of inefficiency but we are just beginning to realize that the only methods which will achieve success were clearly defined in this State ten years ago and have been repeatedly urged since as the promising agencies in the conflict.

We must find the consumptive early and supply control

and relief. Control without relief will not succeed. They must be combined. Prevention and education are certainly ineffectual with a large class of consumptives because continued discipline is at best partial unless associated with institutional care. To conquer tuberculosis the victim must be found, if possible, before he is a source of danger, and the intelligent, humane and scientific method of reducing prevalency and a disgraceful death rate is to offer him a chance for his life. At times the demands for prevention are made by those who seem to lose all sight of the fact that the saving of life is a commonsense method of reducing a death rate. The theory of control by segregation of the advanced case is in many ways cruel and unscientific. The advanced case of consumption is simply the natural result of ignorance, incapacity or neglect.

At what precise time did he become a danger to the community? When was he found and segregation established? How long had he been spreading infection? The attempted segregation is almost always made after harm has been done. This is also true of instruction to the patient to a large extent. Last year I questioned one hundred applicants, who were suffering from tuberculosis in its various stages, who desired to enter the New York State Hospital for Incipient Tuberculosis, concerning the instruction they had received. Less than one-third had received sufficient instruction to obviate the probable danger of infecting others. Ninety per cent. of this number were expectorating bacilli. If the problem were not so vast and the extent of the disease had not passed beyond our control at least fifty per cent. of all advanced cases should never have been allowed to reach that stage and the other fifty per cent. should be under control.

With these introductory remarks of a general character I take up the topic assigned me.

Certain conditions which exist at the present time make it an opportune moment for any city in this State to begin the combat against tuberculosis. The chief obstacle to successful work in the past has been the absence of knowledge concerning the location of the victims of this disease. One can learn how many cases of scarlet fever or measles there are in a community because the reporting of them by physicians is compulsory. This has not been true of tuberculosis.

In Buffalo, for instance,—and the record of that city is about the same as that of any other in the State excepting New York City,—we find in the year 1907 physicians reported to the Board of Health 520 cases of tuberculosis and there were 554 deaths from that disease. Apparently fewer cases were reported than the number of deaths from the disease. It is safe to assume that about five persons suffer from tuberculosis for one death recorded and we must have at least 2,500 victims of tuberculosis in Buffalo.

We learn of a focus of disease after the death of the individual, and no more is heard from that home until another death has occurred. Under such circumstances what folly it is to talk of or attempt prevention. Fortunately a state law has been passed making the reporting of all cases of tuberculosis compulsory. If this law is enforced as it should be it will be possible to attack tuberculosis by the application of well known methods. There is no longer room for much argument on the part of the medical profession that this law will add hardship to affliction. That can be largely avoided and any protest or evasion should no longer excuse violation of an absolutely necessary statute. Furthermore, the State has demonstrated beyond all cavil what can be accomplished by the treatment, isolation and education of the incipient consumptive. More than eighty per cent. of apparent recoveries in incipient cases have been reported each year at the State Hospital for Tuberculosis. It seems as though the first step in any city should be the formation of an association for the control and relief of tuberculosis. A wise way to organize is to invite delegates from every organization which may be helpful and thus secure a thoroughly representative group. This has been the plan pursued in Buffalo. It is highly important to have a paid secretary constantly employed, if possible.

Next, there must be a study of local conditions and causes. Provision must be made for obtaining money. You cannot fight tuberculosis without money. You must spend money to check the loss of wealth. Some years' experience have led to the conviction that progress will depend to a very large extent upon the provision for hospital or sanatorium relief. Wherever we study the death rate from tuberculosis we find apparently without exception that it has decreased propor-

tionately with the number of beds provided for the care of consumptives. Newsholme, in a recent paper presented to the International Congress on Tuberculosis, has emphasized this point and revealed the importance of institutional care in a most exhaustive manner. In Buffalo we are crippled because we lack hospital facilities. Boston has over seven hundred beds for consumptives. New York City has over two thousand and the number is being rapidly increased. In Buffalo we have sixty beds for advanced cases and practically none for hopeful cases. Raybrook has been a great source of relief in Buffalo and also in Albany. But recently this condition has changed and that institution is now filled, applicants must wait for two months before they can be admitted. Fifty are waiting at the present time in Buffalo and by the time many of them are reached for a re-examination they will have passed the stage when they can be allowed to enter under the provisions of law.

The fact that no greater provision for the care of incipients has been made by the State calls for no criticism or unfavorable comments. The demand for additional accommodation has not been made because the hospital has never been filled until the past summer. Four years were required before the result of example and education was shown by testing the full capacity of an institution with 164 beds. Now additional facilities are imperatively needed and must be urged this winter. Whether this State will move as fast as Massachusetts or Pennsylvania in the struggle against tuberculosis depends upon the activity, influence and appeals of the people. In the meantime the progressive city cannot wait for the State to assume the stupendous burden necessary for the care of the vast aggregation of consumptives. Any effort of the State must be supplemented by the municipality. Both can be and should be encouraged by local organizations devoted to the study, care and prevention of tuberculosis.

New York State supplies 164 beds for about 75,000 consumptives, of which number many thousands are in the incipient stage, unrecognized or unable to procure proper relief. This is no new story because at least sixty per cent. of all consumptives die simply because they are poor or have been made so by inability to labor. Whether it is the duty of the State or the municipality to care for hopeful cases of tuber-

culosis is not the question under discussion to-night. The fact is that if the cities do not move at the present time any progress against tuberculosis must necessarily be slow and somewhat futile. The more we consider the care of the consumptive the more we are startled by peculiar conditions which surround him alone. His distress and neglect make him a unique figure in our system of charities. He is the only sufferer from any disease who is denied skillful treatment and care at the expense of the community when it is required. The fact that his treatment must be prolonged has nothing to do with the question and a necessity for adequate relief is all the more pronounced because he is a source of danger to the community. It is probable that we shall have a hospital for the care of early cases of tuberculosis in the vicinity of Buffalo in the near future. The fact must be made clear that any struggle against tuberculosis must necessarily be conducted on the percentage basis. All of them cannot be put in an institution and thorough prevention is obviously impossible and must be established by degrees. The hope at the present time in view of our knowledge is to reach as large a percentage as possible and continuously extend supervision.

Experiences show that construction of hospitals or sanatoriums for consumptives should be made as cheap as possible but comfort must be considered and there is danger today of carrying primitive methods to the extreme. Until hospital facilities can be supplied certain other methods can be inaugurated and the dispensary designed exclusively for tuberculosis should be established. The advantages to be obtained from a dispensary are these: Many patients are reached who would otherwise be undiscovered. There is a chance to instruct and control to a certain extent. It affords a clearing house for the selection of early cases who may obtain help. It provides the place where physicians may learn to make an early diagnosis. Many of the distressing features of the disease may be relieved and some of the results of poverty will be removed. One of the chief factors in tuberculosis dispensary work is the visiting nurse who can go into the home and carry the result of her training with her. She can do much to prevent infection, improve hygiene and see that instruction is observed. A rule should be established

that the other members of the family who have been exposed must submit to examination, and they should be examined in the home or at the dispensary. I cannot emphasize too strongly the importance of examining the exposed. It is probably the best method that one can employ to detect the incipient case. They will be found unsuspected with slight or no symptoms in from twenty to fifty per cent. of the families among the poor. Last year I reported an instance to illustrate what can be accomplished by examining others in the same building with a consumptive. The fact that one nurse in a hospital had tuberculosis of the lungs led to an examination of the nursing staff and it was found that ten of the thirteen nurses were suffering from the same disease in an incipient or moderately advanced form. Eight of these cases had been entirely unsuspected.

The dispensary naturally leads to the class system, which was first tried in Germany and demonstrated in this country in Boston. Trinity Church in Buffalo has formed such classes and the patients are selected from the dispensary list. These classes have proved to be a highly successful agency in the campaign. The patients are carefully instructed once a week and they make written or verbal reports as to their progress and the results of admonition. Time will not allow of a more lengthy discussion of this rather novel plan.

There is probably no more interesting phase of municipal effort intended to check tuberculosis than the day camp. I confess to a feeling of skepticism when they were introduced but I have been completely converted and have become a warm advocate. Last summer some benevolent citizens provided the funds to try an experiment in the Buffalo climate. A fine site was obtained within the city limits, the objection of neighbors was overcome and a tent camp was opened for the care of thirty-five consumptives with formal ceremony. Mayor Adam made an address to a large number of citizens assembled at the Camp and expressed his firm belief that it would be a success. A cottage was built containing a kitchen, storeroom, office and two bedrooms. One of these bedrooms was occupied by the nurse and the other by the cook. A large tent adjoined the kitchen which was used as a dining room. The methods employed were those followed in a sanatorium for consumptives. A lunch was given in the morning,

a hearty dinner at noon and another lunch in the afternoon before the patients returned home. They came to the Camp in the morning and returned to their homes at night. Their homes were visited by a nurse to insure open windows at night. Their carfare was paid to and from the camp. The cost was sixty-five cents a day per patient. The patients selected for treatment were those who were poor, most of them highly dangerous, advanced cases, from homes where open air treatment was practically impossible. Six incipient cases were allowed admission because they could not find accommodation at Raybrook. The Medical Report at the end of the season showed that five patients had apparently recovered and they would be so classified except for one reason that they had not remained under observation for three months after the signs and symptoms of the disease had disappeared. Application was made for their admission to Raybrook to clinch the result by more prolonged treatment. Ten of the cases showed an arrest of disease and on examination six weeks later showed that the arrest had been maintained. The improvement and the gains in weight were about what would be expected in the remainder of the patients.

It is the intention of those interested to double the capacity next year and if possible to provide another camp. The Day Camp is to a certain extent a makeshift and the full effect of hospital treatment is not supplied but it may be of tremendous importance where hospital relief is unobtainable.

Medical inspection of children in the schools and home is a valuable feature of work designed to reach the tuberculous child. Children are more frequently infected than was formerly supposed and surgical treatment is in many instances highly successful in preventing, or removing the danger of an extension of infection. I refrain from any discussion of the modes of infection and the theories of latency. There is sufficient knowledge to enable any city to wage a successful campaign. The plain fact to be remembered is this: We know or claim to know that tuberculosis is curable, preventible and unnecessary. That statement has been reiterated until the vast majority of people can recite the truism without any hesitation. How much has this slogan of battle helped the poor sufferers? amazingly little. The knowledge has not been applied and can not be made effective until it arouses action,

awakens sympathy and a feeling of responsibility for widespread pathetic affliction and dire distress. The poor consumptive is to-day the saddest thing in the world. He can be, but is not protected. He can be, but is not helped. In this age he should be helped until he is well, not simply relieved until he is dead. You don't want the whiners or the timid invertebrates in your work unless they can be reformed. You will hear numerous complaints that there are so many problems and this one is so big. The conflict in New York City is colossal in its phases, the magnitude of contributing vicious conditions would be appalling except to men of great and unusual courage like Herman Biggs. He began the fight alone and struggled for years almost single-handed. He is battling yet, others have joined in the crusade and they are gaining on the enemy, carrying one intrenchment after the other and they have already checked the advance of the insidious and frightful disease. New York City now unquestionably leads the world in the extent and the methods of a campaign againist tuberculosis. We must turn there for scientific example and instruction. The presentation of startling statistics has not won the interest or stirred the public to the extent expected. Perhaps telling appeals to sympathy and truths that reach the heart may accomplish more. The injustice and the lack of fair play from which the consumptives suffer have not been fully depicted and no one can portray it more forcibly than the physician who has grown weary or angry from listening to the death rattle in a consumptive's throat and realizes that life was unnecessarily sacrificed. You may ask how soon can consumption be conquered and the wise will not prophecy. Experience teaches that a big sociological problem is involved. Certainly the task is big and broad enough for any community. If the plain and reasonable methods for attacking causes, not results, are employed there can be no doubt of a gradual stamping out of the malady.

Finally I invite attention once more to the ravages of a disease as revealed by the death rate to clinch the argument in favor of help and control before it is too late. From a scientific standpoint the most remarkable feature of the mortality is the striking manner in which it is maintained from year to year. There must be one or more recruits to take

the place of each victim who succumbs. There must be four groups in the procession of the doomed. One on the verge of the grave, one composed of the advanced case, one moderately advanced and the recently infected who have just joined the ghastly throng. The newly enlisted victim must be searched for and detected early, removed from the army of unfortunates and transferred to the ranks of the recovered if that is possible, where he may become a missionary to teach a new gospel of hygiene and the benefits of food and fresh air.

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## THE FAVORABLE ASPECTS OF THE MEDICAL TREATMENT OF PULMONARY TUBERCULOSIS.

*Read before the Medical Society of the County of Albany, November 25, 1908.*

By SAMUEL B. WARD, M. D.

*Mr. President, Ladies and Gentlemen:* While this is a meeting of theAlbany County Medical Society I was informed that an invitation had been extended to the public to be present and was asked to address my remarks to the non-professional portion of the audience with a view of correcting what seem to me to be some very prevalent misapprehensions concerning tuberculosis. This must be my apology to my professional brethren in the audience and the explanation of why they will find nothing whatever new in what I have to say.

Undoubtedly it was a very important event in medicine when Robert Koch, in 1882, announced to the world that he had discovered the germ of tuberculosis. It placed this disease among those which may be conveyed from one individual to another, and the medical profession at once began to impress this fact upon the public. It was most important to do so because all diseases of this class are in some way or other preventible.

Now the public had for many years been familiar with some diseases which may be contracted by simply coming in contact with individuals who have them, such as smallpox and scarlet fever, and the laity jumped at once to the conclusion that tuberculosis was contracted in the same way. This conviction is to-day as widespread and as firmly planted in the minds of many, as it is absolutely erroneous.

To make this matter clear let me tell you that of diseases conveyed from one individual to another there are two classes—one known as contagious and the other as infectious. A susceptible person may contract a contagious disease by simply breathing the air surrounding an individual who is the subject of it; it is never so with an infectious disease.

Infectious diseases are conveyed in various ways. The germ of typhoid fever always leaves the sick person in the discharges from his kidneys and bowels and is received by the person concontracting the disease through his digestive system. There is no more danger of a person's contracting typhoid fever by simply sitting in the room of a patient ill with this disease than there is in getting a broken arm by making a social call on a friend who has one. We who practice medicine here in Albany need no extended argument to prove that while typhoid may occasionally be carried in milk, by flies and in other ways, it is essentially a water-borne disease. The establishment of the filter beds in connection with the city water supply has practically eliminated the disease from our midst and well nigh wrought the financial ruin our our profession.

Yellow fever and the malarial fevers are always conveyed by mosquitoes. To avoid contracting either of these diseases, no matter in what climate, nor how prevalent the diseases may be, all that is necessary is to save yourself from being bitten by mosquitoes.

That tuberculosis is not a contagious disease is proven in the history of the Adirondack Cottage Sanitarium. That institution was started by Dr. E. L. Trudeau, at Saranac Lake, in 1884, and is devoted exclusively to the care of patients suffering with tuberculosis. During the past twenty-four years some two thousand seven hundred patients have been cared for there. It has been necessary to employ several hundred attendants of all classes. Some were waitresses who served the patients at their meals and washed the knives, forks, spoons and plates which had been used. Others were chambermaids who swept and dusted the rooms and made the beds of the inmates. Some were laundresses who washed all the body and bed linen of the establishment. And some were trained nurses who took care of those who were confined to bed, or so ill as to require attention and assistance. It is a notorious fact in connection with all contagious diseases that the grouping together of the sick

adds to the virulence of the contagion, and here an opportunity presented, if ever there was one, for tuberculosis to show just how contagious it was. And what have the results been? The simple and exact fact is that in all these years not a single attendant has contracted the disease.

The New York State Hospital for Incipient Tuberculosis, at Ray Brook, has been in operation for six years. Several hundred patients have been treated, many attendants have been employed, and not a single one of them has ever contracted the disease.

In these days when theories are so numerous, and sometimes so flimsy, it always does my heart good to get hold of a solid clinical fact that I can rely on. And here are two that are incontrovertible, two upon which I know that I can rely. Tuberculosis is not a contagious disease in the sense that smallpox and scarlet fever are.

In justice to my profession I must hasten to add that physicians never intended to say that it was. What we did say was that it was *infectious,* that it was communicable from one individual to another, that it was in this way that the disease spread, that it was in point of fact *only* in this way that the disease spread, if we leave out of consideration the comparatively few cases in which it probably comes from the lower animals. But we were misunderstood and the laity have become imbued with an exaggerated dread of the danger of the contagion which would be ludicrous were it not so pathetic, which has brought about gross injustice to the poor sufferers from this disease.

Let me call your attention to two or three facts which show how widespread this fear is. I have personally known of three individuals who have refused to go for a drive in the Adirondack region because the route to be taken would carry them through the streets of Saranac Lake village. Of course, this is simply laughable. Every medical man knows that the streets of Saranac Lake are as safe as those of Albany or New York and probably, on account of the precautions there taken, are much more so.

Far worse than this is a second fact with which you are all familiar through the public press—that certain localities have refused to have hospitals, or even dispensaries, established in their neighborhood for the care of tuberculous patients. Now if one locality may properly refuse certainly another may, and

yet it is simply inhuman, brutal, devilish to deny to these poor sick ones proper care in some locality where they may get well. If their presence were really and necessarily a menace to the health of their neighbors there would be some justification for the prevalent feeling on this subject. But, I repeat, they are not, and the histories of the Adirondack Cottage Sanitarium and the hospital at Ray Brook prove it beyond a doubt. The proximity of a hospital for tuberculosis patients is not necessarily more dangerous to the health of a neighborhood than is an apothecary's shop.

A practitioner of medicine in the Adirondack region who has many tuberculous cases under his care found one autumn that a charming young girl who had been there during the summer was doing so badly that her recovery was not to be expected. He wrote to the girl's mother breaking the sad news as gently as possible and advising that the patient return to the city where she could have all the comforts of home and the society of friends and of her family, which she greatly desired, during the remaining months of her life. You can imagine better than I can describe, or characterize, the doctor's feelings when the mother replied that on account of herself and the other children she was afraid to have her daughter return home and begged him to spare no expense to make her comfortable in every possible way where she was, and after her demise see that she was properly buried. Now I respectfully submit that when the fear of contracting this disease has been so extravagantly exaggerated as to render such an incident as this possible, it is high time that the real facts in the case were brought prominently forward.

The germs of diseases that may be communicated from one individual to another, whether by contagion or by infection, belong to the lowest forms of life. Some are animal, such as the protozoa which cause malaria; others belong to the vegetable kingdom, including all the bacteria, and among these Koch's bacillus or the bacillus of tuberculosis. All are so small as to be invisible to the naked eye, so minute as to require a microscope of high power for their examination and study. They have, however, some of the characteristics of vegetables with which you all are familiar, while in other respects they differ from them widely. For instance, like all other vegetables, in order to grow and reproduce themselves they must have a suitable soil. If you sowed a bushel of the best wheat in the world

on the pavement of State street you would not expect to get a crop; it would "fall in stony places," with a result predicted nineteen hundred years ago. This explains the fact that so many of us are exposed to the disease day after day and yet never contract it at all. It is also true that those of us who are well and strong have in our bodies certain cells which attack and destroy the germs of disease which occasionally gain an entrance, provided the latter be not too numerous or too virulent. But this is neither the time nor the place to go into that question. The practical point is that proper attention to hygiene and, in general, leading "a godly, righteous and sober life" pays mighty well in the end by enabling us to resist disease.

We have seen now that tuberculosis is *not* contagious, but that it is infectious, and that infections are conveyed from one individual to another in various ways. Typhoid is conveyed by means of the discharges from the bowels and kidneys, and if it were possible in every case to disinfect these the moment they left the patient, the world over, typhoid fever would be stamped out in a few weeks or months. "Disinfection" sounds very learned and abstruse to some of you, perhaps, but it means nothing in the world but killing the germs, and as "dead men tell no tales" so dead germs produce no disease. Malaria and yellow fever are, as we have seen, conveyed only by the bites of mosquitoes. Now, how is tuberculosis conveyed?

The answer is perfectly definite and simple. It is conveyed through the sputum and through that alone. This again is proven by the history of the Adirondack Cottage Sanitarium. Dr. Trudeau insisted from the outset that patients should ever and always spit into a receptacle which already contained a disinfecting solution, or into paper receptacles which could be burned every few hours. Latterly the last-mentioned method has been found the most satisfactory and has been universally adopted. No other precaution than this was adopted and you have heard the result. This experience has been repeated the world over wherever this precaution has been adopted.

The moist sputum is not in itself a source of danger, for the germs cannot fly out of a wet mass and attack anyone; but when a careless, or ignorant, or reckless patient spits on the floor, or carpet, or wall, or on the edge of a cuspidor, and the sputum dries into dust, currents of air carry this dust, laden with the disease germs, into the lungs of anyone in the vicinity. Hence

it is important that the sputum be destroyed every few hours before it has time to dry.

Of course, these germs, like every other living thing, die a natural death if not destroyed. But they retain their vitality for a considerable period, several days at least, if kept in a damp and dark place and in a confined space. In the open air and in sunlight they survive only a few hours, often not more than two or three. This is a scientific explanation of the well-known clinical fact that all these patients do so much better in fresh air than in any ill-ventilated apartment.

Of late years considerable stress has been laid upon the possibility of patients expelling from their mouths, in the act of coughing, droplets of fluids containing the bacilli. There can be no doubt that this is perfectly possible; but for many years, before this was thought of, and if only the sputum was cared for, the disease was rarely conveyed. Still, since we now know of this possibility, patients should be instructed to hold before their mouths, during the act of coughing, pieces of cheese-cloth, or other cheap material, which can be burned before it is dry.

In closing, let me impress upon you three simple facts. First —Tuberculosis is spread through the community by individuals who have it. Second—It is disseminated practically only through the dried sputum. Third—The patient who takes simple and proper precautions in coughing and spitting is *not* a source of danger to others.

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## THE TUBERCULOSIS DISPENSARY.

*Read before the Medical Society of the County of Albany, November* 25, 1908.

By ARTHUR T. LAIRD, M. D.

The tuberculosis dispensary has a very definite and well-recognized place in any municipal campaign against the disease.

One of its principal functions is to be a center to which patients may be referred for examination and where they may most quickly be put in touch with the treatment and relief necessary in each case.

The dispensary should never stand alone but should be most closely related to all other departments of the work, such as the medical profession, the general tuberculosis organization, the

State sanitarium and other institutions for incipient cases, the hospital for advanced cases, the tuberculosis class, the day camp, the work of the district nurses and the city bureaus of health and charities. In Albany these departments of the work are well organized. With their aid the dispensary is in a position to obtain the proper treatment for each patient. They also need some central institution like the dispensary through which to work effectively. This co-operation has already produced good results in Albany, as is shown in the brief history of the dispensary since it was opened a little more than a month ago, on October 19th.

At the suggestion of the Albany Committee on the Prevention of Tuberculosis of the State Charities Aid Association, the medical staff of the South End Dispensary voted to establish a tuberculosis department. Upon the recommendation of the Tuberculosis Committee of the Albany Guild for the Care of the Sick one of its trained nurses was assigned for special work in connection with this department. The City Bureau of Health furnished literature, specimen boxes and report cards, and makes free examinations of sputum

The staff of the dispensary now consists of four physicians in regular attendance at the dispensary hours and a special nurse for the tuberculosis work, who is assisted in the home work by other nurses of the Guild for the Care of the Sick. The nose and throat department of the South End Dispensary to which cases of tuberculosis of the throat are referred and treated co-operates. Arrangements have also been made for X-Ray examinations when necessary. There are several divisions of the work.

1. The maintenance of an information bureau. Any individual wishing to learn about any phase of the tuberculosis work, about any sanitarium or private institution for the treatment of tuberculosis in the country, or who merely wishes to know what he or his friends should do in order to avoid contracting the disease, or what a patient in the family should do to secure proper treatment, can find the desired information at the dispensary. Records are also kept of the changes of residence of patients and cases are reported in accordance with the law of the City Bureau of Health.

2. The giving of instruction in the prevention of tuberculosis at the dispensary and the constant repetition of the lessons learned there in connection with the work in the home.

3. The free examination of patients who are unable to employ a physician. The Central Federation of Labor has made the dispensary the official examining place for its tuberculosis pavilion.

4. The securing of the best treatment possible for each patient, whether in the State Sanitarium, the Central Federation of Labor Pavilion, the Tuberculosis Class of the Albany Guild, or home sanitarium treatment under the care of the dispensary. The home care is one of the most important parts of the work and in certain cases patients may be restored to health at home when it is impossible for them to enter an institution.

The South End Dispensary furnishes our rooms, heat, light, medicines, the medical staff and stationery.

In connection with the educational work there is need of more complete record cards such as are used in other cities. Circulars of information, printed in English and other languages, preventive supplies, a cabinet, cases for filing records and information regarding institutions can also be used.

For the relief work there is close co-operation with the charitable organizations in securing milk and eggs for patients and especially warm clothing in which the out-door cure may be taken comfortably. People cannot and should not try to stay out doors and shiver. A cheap fur coat costing about twenty dollars is the most comfortable garment in which to sit out, but the feet must be covered with warm blankets or felt shoes. When fur coats cannot be obtained one can be comfortable in a Klondike Bag. A fairly good one can be made for one dollar and a half, from a pattern furnished by the Providence Society. A warmer one such as is used in Canada, can be made for about six dollars. Here is work for ladies' societies, and the ladies of the Auxiliary for the Central Federation of Labor Tuberculosis Pavilion have already taken it up.

Funds should be provided to pay the expense in sanatoria, and in the Pavilion of those who cannot be admitted to Raybrook, and the family must be supported in the absence of the bread winner. Wherever possible, the church, labor union or fraternal society to which the patient belongs should help. The relief committee of the Albany Committee for the Prevention of Tuberculosis has already greatly aided the dispensary in these matters. Various churches and organizations have also lent a hand.

For those who must stay at home, porches should be built in

some cases. They can be provided at a cost of twelve to eighteen dollars, as has been shown in Troy. The advantages to be derived from real out-door living without compromise are great, both to the health of the patient, and of the family who occupy the same rooms.

The very ill should be made as comfortable as possible in a hospital for advanced cases which is one of the crying needs of the city. The new tuberculosis pavilion is a step in the right direction, but should not take dying cases. It cannot provide for more than a small portion of the moderately advanced cases.

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## HOW DANGEROUS IS THE CONSUMPTIVE?

*Read before the Fourth District Branch of the New York Medical Association, October 13, 1908, at Amsterdam, N. Y.*

By DAVID C. TWICHELL, M. D.,

*Saranac Lake, N. Y.*

Tuberculosis has lately been classified in New York Law as "an infectious and communicable disease." Villemin noted that the mortality from this disease was three times as great in the French prisons as among the free population. Quite similar records have held good for other countries. In the New York State prisons seventy-five per cent. of the deaths were reported as due to tuberculosis in 1890. It is far from clear, however, that contagion is especially frequent, since so many prisoners are already infected on admission, the confinement and depression of prison life developing the disease among a class especially prone to previous infection by their manner of life.

In France, among the Catholic Hospital Nursing Orders, 62.88 per cent. died of tuberculosis in the cloisters during twenty-five years, according to a government inquiry which included 74,306 persons. The conditions in America are apparently much better for nurses, although it is asserted that ten per cent. of the medical internes of Bellevue Hospital have developed tuberculosis, and it is doubtless true of many other general hospitals, where both nurses and physicians are in intimate contact with patients and under nervous strain from responsibility, with general lowered resistance from over-work.

The "Lung Blocks" so graphically displayed at the New York Health Department and by the Phipps Institute in Philadelphia,

appear to show conclusively how tuberculosis predominates in the most crowded sections of those cities. The dark bedrooms—rooms which have no ventilation whatsoever—where three to five people sleep, must be a great factor in the spread of the disease. No ray of sunshine has penetrated them since the mason put the last brick in place, perhaps twenty years ago.

Cornet cites several instances of successive tuberculosis in factory employees. In a recent investigation at Cleveland, Ohio, 7.5 per cent. of 504 children of tuberculous families, or exposed more or less to a tuberculous individual, were found to have some form of the disease. 12.6 per cent. were suspected. Tuberculosis is so largely a family disease, with from forty to sixty per cent. of all patients disclosing a history of others in the household, that the importance of family infection can hardly be exaggerated. The opportunities are innumerable in the homes of the poor and ignorant, and rarely wanting among the wealthier classes. Dr. Emmet Holt, at the Babies' Hospital in New York City, in a study of sixty-seven cases of pulmonary tuberculosis, all under two years of age, found a history of direct contagion in forty per cent.

In the way of contrast to these well-known facts, I would call your attention to certain other well established facts. These give us another aspect of the question bearing upon the infectiousness of tuberculosis, which must be borne in mind in forming a true opinion of the danger of the consumptive to his fellow-men. The records of special hospitals and sanatoriums for tuberculosis, as the Brompton Hospital in London, where statistics show that doctors, nurses, and attendants are rarely attacked, are quite the reverse to that of general hospitals as stated above. No case of tuberculosis has been known to develop among the employees of the Adirondack Cottage Sanitarium since its foundation twenty-two years ago. These included waitresses, chambermaids, and laundresses, from the native Adirondack population, many of whom were badly nourished on entering the service. The same absence of infection among nurses and attendants was claimed by Dettweiler, of the Falkenstein Sanitarium. Dr. Irwin H. Hance, in a series of experiments at Dr. Trudeau's Sanitarium, found that dust taken from the floors of the seventeen cottages failed, when inoculated into guinea pigs, to produce tuberculosis, except in the case of one cottage where the infectious material was due to the gross carelessness of one patient. He says,

"With this array of negative results a most conclusive proof is given that a body of consumptives need not infect the house they occupy, when their excretions are destroyed, since sixteen buildings out of seventeen inhabited by consumptives for so long a period as ten years were absolutely free from infectious material."

While acting as assistant resident physician at the Adirondack Cottage Sanitarium, in an experiment on the vitality of tubercle bacilli I found that the conditions most conducive to the prolonged life of tubercle bacilli in sputum are darkness and moisture. The bacilli under these conditions were alive at the end of five and one-half months. The direct sun rays killed them in a few hours.

Lately the question of the danger of infection being carried by table utensils has been investigated by Dr. J. Woods Price, at the Reception Hospital in Saranac Lake. He took scrapings from table utensils immediately after their use by tuberculous patients and was able to infect guinea pigs with the material. After the simple measures of cleansing in practice in every household—scouring with soap and hot water—scrapings from these same utensils failed entirely to infect guinea pigs.

Of late much fear has been excited about the danger of infection to residents in health resorts. No foundation for such fear has been demonstrated in any American resort, and the most unbiased investigations have even proved the contrary, for relatively fewer cases of tuberculosis develop than in other communities not resorted to by the tuberculous. In the past four years there have been no deaths from pulmonary tuberculosis in the resident population of Saranac Lake. By resident population is meant those who permanently reside there and are natives of the place, as distinguished from visitors who come for their health. Several factors tend to obviate danger, such as the general open-air life of the invalids, who are as a rule intelligent and have comparatively little indoor contact with the residents. Furthermore the disease is usually properly recognized and precautions instituted.

As bearing on the contagiousness of tuberculosis, the marital relations would appear to afford the most favorable opportunities for contracting the disease. Mr. Ernest G. Pope, of Dr. Trudeau's Sanitarium, in a statistical study on marital infection in pulmonary tuberculosis, draws the following conclusions: "It would seem probable that (1) there is some sensible but slight

infection between married couples; (2) this is largely obscured or forestalled by the fact of infection from outside sources; (3) the liability to infection depends on the presence of the necessary diathesis; (4) assortive mating—*i. e.,* in which both parties are of tuberculosis diathesis, probably accounts for at least two-thirds and infective action for not more than one-third of the whole correlation observed in these cases." At present it would seem to be fairly well established, if statistics discussed according to the mathematical formulas of probability are of any value, that consumption is not actively contagious between husband and wife, and that a certain previous constitutional condition or predisposition is essential for its contagion to act in any case.

How can these apparently rather contradictory sets of facts be reconciled, and how do we reconcile our preaching in the slums with our practice in health resorts? Dr. E. R. Baldwin, of Saranac Lake, summarizes the present views on infection in tuberculosis as follows: "It is highly desirable to arrive, if possible, at some definite conclusions from the mass of facts now at our disposal and compare them in relative importance. In the first place, the doctrine of inherited or acquired susceptibility still holds sway, except that a specific susceptibility is in doubt and at most not common. Next, that all infants are susceptible, and that susceptibility lessens with increasing age. Lastly, that adults are comparatively insusceptible when without general or local lowered resistance and repeated or prolonged exposure. As to the source of infection, the concensus of opinions and ascertained facts point to the sputum as of overwhelming importance.

It is well remarked by Cornet that "the consumptive in himself is almost harmless, and only becomes harmful through bad habits." He made it clear in his investigations that the presence of bacilli was only to be assumed in places frequented by careless consumptives.

"Consumption may well be termed a house disease," writes Flick: "without the house it would not exist. It depends upon the house for its implantation, propagation, and for the evolution of all its phenomena. The house is the place where the tubercle bacillus lies dormant, in waiting for its new host. It is the place where the new host gets its implantation. It is the place where the tuberculous subject gradually becomes a consumptive, and it is the place where the consumptive dies.

"In studying the progress of civilization in the light of modern science, one is struck with the blunders into which man has been led by his desire for privacy and comfort. He has built his house to keep out his enemies, to protect himself from heat and cold, and to screen himself from the curiosity of his neighbors. He has sought to make his home his castle, but in reality he has made it the place wherein he courts death."

With an intelligent view of the facts, we can hold on the one hand that the poor and ignorant consumptive, living under adverse conditions in the slums of our large cities, is a source of great danger to his fellow-men with whom he comes in contact. On the other hand, it is felt that the facts justify the assumption, that, except perhaps in the case of very young children, there is practically no danger to others in a well lighted, well ventilated and well cleaned house—and this is especially true in health resorts with the generally open-air life of the invalids—with intelligent patients who have it on their consciences to destroy all their sputum, taking care to cover the mouth when coughing. It might be well to add that the simplest and surest means to prevent the dispersion of the droplets coughed out is to hold a ball of cotton the size of the fist before the mouth when coughing; the cotton must be renewed every day, the soiled ball being burned.

Calmette says, "It is a disease of ignorance, because the exact knowledge of the conditions for its transmission, of the ways of infection and of the means to destroy the tuberculous virus, as it emenates from man or animal, will enable any person to avoid tuberculosis almost to a certainty."

In forming an estimate of the danger of the consumptive to his fellow-man we must take into consideration the habits of the consumptive, the condition of his environment, the dwelling, the degree of cleanliness, and the climatic conditions.

# A FEW POINTS REGARDING THE DIAGNOSIS OF INCIPIENT PULMONARY TUBERCULOSIS.

*Read before the Second Annual Meeting of the Third District Branch of the New York State Medical Society, Troy, N. Y., October 26, 1908.*

By ARTHUR T. LAIRD, M. D.,

*Albany, N. Y.*

The importance of an early diagnosis in pulmonary tuberculosis is so great that repeated discussion of the matter at our meetings is certainly desirable.

That early diagnoses are not always made by the most conscientious physicians is shown by the late detection of the disease in doctor's wives and children. In a lamentable number of instances tuberculosis has advanced to an incurable stage before its presence is recognized by the natural guardian of the patient's health. A greater familiarity with the problem of diagnosis and more careful examination of the bared chest would lessen the number of such tragedies. At best, recovery from tuberculosis is a difficult object to attain. In some truly incipient cases it is impossible. Short delays in reaching a correct diagnosis are apt to mean long extensions of the time required for treatment.

We must put aside first of all some natural misconceptions. One is that a person of healthful appearance is not likely to be suffering from the disease. We must never pooh-pooh such a person's fears and dismiss him without examination. One may have the physique of an Apollo and still be infected. We must not overlook the possibility of cases occurring among our own immediate relatives and friends, in spite of the absence of a bad family history. We should be able to detect the presence of the disease before it is plain to every passer-by.

That early diagnoses are now made more frequently than was formerly the case is shown by the increasing proportion of incipient cases admitted to sanatoria. Yet, the refusal at these institutions of patients sent to them with unrecognized extensive disease is all too frequent, and entails heart-breaking disappointment and discouragement. The bitterest expressions I have ever heard used regarding the medical profession have been employed by patients who have lost their chance of recovery because their doctor did not detect their tuberculosis in its early stage.

The identification of the disease is of course a simple matter when tubercle bacilli are present in the sputum, but then the

process has already advanced to a considerable extent. It is no longer in the "closed" stage but there is an open communication of some tuberculous focus with a bronchus. It is often possible to arrive at the correct diagnosis long before tubercle bacilli are found. No special acumen is required to make it afterward. Still it would be a great mistake not to search for them carefully and repeatedly in every case, for they do sometimes appear before the physical signs or even symptoms.

If no bacilli are found, we must come to our conclusion from a consideration of the history, symptoms and physical signs.

The careful study of the family history and of the history of exposure to infection is of prime importance. In many incipient cases the only thing directing our attention to the patient may be the presence of tuberculosis in the family or house. Wherever there is a moderately advanced case, there are likely to be incipient ones in the same family. One sanitarium superintendent obtains many incipient cases for his institution by making a very practical application of this general truth. He finds them among the relatives and close associates of the refused candidate for admission, or in the families of dispensary patients who are themselves not eligible All such persons, even if apparently in the best of health, should be examined. Considerable stress was laid on this point at the International Congress.

The real significance of inheritance in the matter is not thoroughly understood. With the great emphasis laid on infection, we have come to disregard the fact that heredity is a relevant consideration. While tubercle bacilli are perhaps not often transmitted from parent to child, it seems to be well established that a type of tissue peculiarly susceptible to infection is a more frequent legacy.

Long continued living with tuberculous housemates and relatives is certainly a suspicious circumstance in the family history. If the disease may remain latent as long as is now claimed by certain German authorities (von Behring), such association in the remote past may be of significance. Children creeping about the floors of apartments occupied by consumptives may thus receive their first infection so early that direct inheritance seems proven.

Certain occupations show a much higher infection rate than others, and, in the persons following them there is more likelihood of finding the disease. The Fourth Annual Report

of the Henry Phipps Institute contains interesting data on this subject. The greatest number of cases were among sewing machine operators, potters, hucksters, seamstresses, stone cutters, and porters. Hardship and deprivation are pointed to very strongly as important factors. "The sewing machine operator who undergoes physical fatigue under bad sanitary environments and whose compensation is insufficient for maintenance of nutrition, stands at the head of the list, and the policeman who has an easy life out of doors and a fair compensation, stands at the foot of the list. Practically all occupations which involve severe physical effort even when they are out of doors, have a high rate, while some of the indoor occupations with easy labor and fair compensation have a low rate." Confinement in dark or poorly ventilated rooms, long hours, poor pay, dust, over crowding, over exertion, and especially underfeeding are the depressing factors, and need not all be present.

But the well to do although surrounded by comforts, subsisting on a generous diet, often live unhygienically. Dark, badly ventilated bedrooms in expensive apartments may be as unsanitary as in tenements; anxiety and worry do not entirely avoid the most fashionable streets. Over exertion is an important factor. Professional athletes seem specially liable to acquire the disease.

In studying the history of previous diseases the record of an illness lasting several weeks, accompanied by moderately high elevation of temperature and usually diagnosed as typhoid fever, often indicates a tuberculous process. This "typho-bacillose" first described by M. Landousy has the following characteristics. The fever reaches its maximum quickly, the temperature is irregular, pulse rapid, sweating is common, catarrhs (intestinal, etc.), are absent or slight, there are no rose spots, no widal reaction, nor are there typhoid bacilli in the blood or stools. This type of acute tuberculous fever has recently claimed more attention.

Particularly suggestive also, is a sharp febrile attack unaccompanied by other symptoms, which rapidly subsides. The chart presents a temperature curve with an acute angle, the so-called "steeple curve." This rise may occur in apparently healthy persons and not last more than a day.

One of the principal symptoms of early tuberculosis is weari-

ness and langour and many patients are treated for neurasthenia and general nervous breakdown for a long time before the true nature of the disease is recognized. The history of inability to work as usual without fatigue is therefore of importance.

The acute infectious diseases leave a person with lessened resistance to other infection, and during convalescence the signs of incipient pulmonary trouble should be carefully sought. All diseases and conditions, including mental strain, which lower vitality, should be considered in the history.

A careful study of symptoms is of the greatest importance inasmuch as in many early cases the diagnosis must be made from them and the history, without the aid of physical signs.

Loss of weight and general weakness should lead us to make careful temperature records, preferably every two hours for several days, except while the patient sleeps. The maximum temperature may be easily missed if this is not done. Instability of temperature control is a most common symptom of incipient tuberculosis. If the temperature readily rises above normal upon exertion and excitement, or without it, we should be unwilling to dismiss the patient as free from tuberculosis, especially if the condition continues any considerable length of time. The normal temperature in health has been arbitrarily fixed at 98.4 and 98.6, by whom it is difficult to determine. It is probable that each individual has his own normal temperature and Rudolph's figures[1] show that in many cases it may be lower, even less than 98 degrees. The upper limits in health are sometimes given as 99.2 degrees and 99.4 degrees (Sahle, Mantoux, Philip). Women are said to be more subject to slight elevations than men. In healthy people the early morning temperature is frequently between 97 and 98 degrees, and this is also true of tuberculous individuals. All the factors which produce slight elevations of temperature in health produce much more marked and lasting changes in tuberculosis. Rest has less influence in promoting a return to normal. So complete is the normal temperature control that a persistent or frequently recurring slight elevation, even to 99 degrees, should in the majority of instances be looked upon as a suggestive tuberculosis. No false security should be enjoyed in an assumed nervous or hysterical fever. Still the diagnosis requires the presence of other symptoms also.

Night sweats may occur in early cases and are apt to be local-

[1] International Clinics, vol. I, 18th series.

ized rather than general. They are one feature of the lack of vaso-motor control which is as characteristic as the temperature instability. The vaso-dilator reflex, *i. e.*, the prompt appearance of a broad red line where the skin is marked with a dry point or the nail, is nearly always present. Flushing and localized sensations of warmth are also common.

An hemoptysis must be proven not to be of tuberculous origin before it can be considered as due to any other cause. Definite symptoms and physical signs may not appear for a long time after the initial hemorrhage. It will not do to assume that the bleeding came from the throat simply because no signs of trouble can be found in the chest.

Digestive disturbances may be due to toxemia. Not infrequently they are of nervous origin. Loss of appetite, nausea, hyperacidity, vomiting, indigestion, occur in incipient tuberculosis without any organic lesions in the gastro-intestinal tract.

It might be supposed that the subject of physical examination of chest in pulmonary tuberculosis was so well worn that nothing new could be said about it. There are however, a few points which seem not to be generally taught or appreciated. If known, they are not generally applied. No less an authority than Dr. Richard C. Cabot[2] recently said "I learned something a short time ago during a visit to Dr. Trudeau at Saranac Lake. You know the old procedure for bringing out crackling rales at an apex, by getting the patient to cough and then breathe just after it. A patient came to me the other day to be examined for lung trouble. After I had made her cough and breathe in this way she said: I can always tell whether a man who examines my lungs knows how to do it; if he doesn't make me cough and then breathe, I know he doesn't know his business. Luckily I happened to know that point and so didn't fall under her disapproval."

Instead of discussing systematically the subjects of inspection, palpation, percussion, and auscultation of the lungs in tuberlosis, I would like simply to mention a few points under each heading and then to demonstrate to you the method of auscultation before, during and after the cough, which I learned at the Adirondack Cottage Sanitarium. Mr. Hirst of the Albany Medical College has kindly consented to act as the patient. A folding screen in the office makes an extra dressing room unneces-

[2] Boston *Medical and Surgical Journal*, 1907, clvii, 281.

sary. The patient should always be stripped to the waist, even if it seems to us very improbable that we shall find anything wrong. If the room is warm and the patient is a man, no covering need be worn on the chest during the examination. If there is any chill in the air, the coat may be worn open in front while the front of the chest is studied, and open behind during the examination of the back. A folded blanket or sheet, or Florence Nightingale sick-room cape may be substituted and should usually be employed in the case of women patients. The patient may either stand or be seated on a revolving stool.

Inspection, even in a well lighted room, may show absolutely nothing abnormal when the disease is moderately advanced. In other cases we may note pallor, disproportion of height and weight, unusual length of chest, prominence of one or both clavicles, and scapulæ, enlarged glands or scars on the neck, rapid visible pulsation of the heart, or restricted movement of one side. Sometimes the movement will be restricted above and diminished below on the same side, or vice versa.

Palpation may be of great assistance in determining the presence of this restricted movement, the difference being felt rather than seen. By palpation also we may detect increased fremitus over the affected area while the patient says "ninety-nine" in a loud voice. An increase on the left side is especially significant.

In many cases percussion gives little or no information, and it is surprising to what an advanced stage the tuberculous process may go before there is any evident dulness. Compensatory emphysema may mask real consolidation, and there must be considerable diminution of lung capacity in any case before there is impairment of resonance, one third of the total, according to Alison.[3] A slight difference in the height to which pulmonary resonance extends above the clavicle or a slight difference in the breadth of the apices, as determined by Kronig's method, may be present in normal cases, one and one-half to two centimeters, yet the marking out of these areas sometimes gives information of real value. Light percussion is especially valuable for this purpose. Brown recommends percussing the resonant areas below and passing gradually up to the apex. Waller[4] recommends the use of weak, medium and strong percussion over the entire chest. He does not lay so much stress as is

[3] Physical Examination of the Chest in Pulmonary Consumption, London, 1861.
[4] International Congress for Tuberculosis, Washington, 1908.

usual on the symmetrical comparison of the two sides. Authorities however, quite generally recommend that like areas on the two sides should be carefully compared.

Auscultation may show nothing at all out of the way, or on the other hand, may settle the diagnosis. The breath sounds may be normal, inspiration may be rough and harsh, expiration prolonged and higher pitched, or tubular in character. Fine rales may be heard. These changes may be limited to small areas above the clavicle. The breathing may be lessened in intensity and weak over the affected side. Sometimes in order to hear it at all, well, the patient must breathe quietly through the mouth, as suggested by Brown. Ordinarily the patient should breathe fairly deeply with his mouth closed during the examination. Forced breathing may be employed if desired. The transmission of the whispered voice is an especially valuable point to study. If it is loud or increased in unusual areas we should study them with great care.

The occurrence of a few fine rales at the end of expiration is a most important sign of the tuberculous process. According to Cornet,[5] if in a certain area of one apex, a few rales can be constantly demonstrated in repeated examinations, there can hardly be any doubt as to the presence of tuberculosis. They are frequently not heard during moderate or even forced breathing, when they may be made evident by coughing. Unless the patient is made to cough during examination these rales may be readily overlookd. Brown,[6] states that rales are rarely detected in incipient tuberculosis during quiet breathing, and when they are the case is no longer in an incipient stage. In incipient cases they are heard during forced inspiration following a cough. It is best to explain to the patient by example how to cough, *i. e.*, with some force as noiselessly as possible, and immediately afterward to take a full, very rapid inspiration. This procedure should be repeated over every part of the chest. In certain cases it is necessary to listen also to the chest during an expiration followed by a cough and a deep inspiration. The examination should not be made too rapidly and the patient should be allowed to rest whenever he feels tired or dizzy. Recent authorities are agreed upon this necessity of making the patient cough if rales are to be obtained and the procedure is insisted upon in the lead-

[5] *Die Tuberkulose*, vol. II, p. 674, 1907.
[6] Osler's *Modern Medicine*, 1907, vol. III, p. 293.

ing sanitaria including the New York State Hospital at Raybrook. The quite general neglect of these measures by practitioners explains the reports of fine rales being heard at the sanitarium over extensive areas where he found none at all or very few. Patients applying for admission have again and again said that they were not made to cough by their doctors at home and in many instances they had been examined without having clothing removed.

The X-Ray may be a very useful aid in clearing up the diagnosis especially in central lesions or in tuberculosis of the bronchial glands, but only when the pictures or negatives are *obtained, studied* and *interpreted* by the expert skiagrapher. The expense of the examination prohibits its use in cases where a positive diagnosis can be reached by other means.

The tuberculin test should be left until the other means of diagnosis have been tried. Tuberculin is a powerful agent and when used carelessly may do harm. When proper precautions are taken serious sequelæ are certainly very rare, and its use for diagnostic purposes is attended with far less serious consequences than the failure to make an early diagnosis. The conjunctival, cutaneous and subcutaneous methods of employing the test have been recommended. The conjunctival method is of doubtful value and is attended with danger to the eyesight. The writer has seen permanent central opacities develop in a young woman's eye who was given the test by a physician in another city. Brown[7] is positively opposed to its use in any case. The subcutaneous method has been employed for many years and the phenomena of a reaction are familiar to you all. A positive reaction adds one link to the chain of symptoms. By itself it does not indicate that the patient should undergo a course of treatment inasmuch as latent and healed tuberculosis may cause a reaction.

The cutaneous test is very readily applied and a reaction is not usually accompanied by any constitutional symptoms. It also is free from the special danger which accompanies the use of the conjunctival test. Its diagnostic value is however, probably less than either of the other two forms of tuberculin test. It is of more value in the case of children than of adults. Wolff-Eisner[8] attributes to it considerable prognos-

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[7] Lawrason Brown. The Diagnostic and Therapeutic use of Tuberculin. Boston *Medical and Surgical Journal*, 1908, clix, 97.

[8] *Beiträge zur klink der Tuberkulose*, 1908, IX, i.

tic value. According to him a promptly appearing severe reaction indicates a favorable prognosis. A quickly occurring mild reaction, or the failure to react in a case of undoubted tuberculosis suggests an unfavorable prognosis. A delayed mild reaction indicates a healed or latent lesion. The test consists in putting a drop of undiluted old tuberculin upon the skin, and then with a lancet or von Pirquet's scratcher, a slight abrasion is made under the drop of tuberculin. It is desirable not to draw blood. A control test should be made about one inch distant. For this purpose glycerin, salt solution, or the broth medium used for the cultivation of tubercle bacilli and concentrated, may be employed. A positive reaction consists in the appearance of a red areola around the scarified point, which is accompanied by the formation of a slight elevation or papule. The early reaction begins in about three hours. A late reaction may not appear until the third or fourth day, and may persist for three or four weeks.

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## HEALTH AS A SCIENCE.

*Address delivered at the Annual Meeting of the New England Association of the Albany Medical College Alumni, November* 19, 1908, *Springfield, Mass.*

By ARTHUR HOLDING, M. D.

### Health as a Science; Or the Preservation of Health vs. the Cure of Disease.

It may not have occurred to you, but it is a fact that judging from present accounts, there will be no physicians in Heaven—practicing. The presence of a doctor, lawyer, dentist, and some other professional men is a "pathognomonic" sign of the absence of ideal conditions among men. The doctor recognizes that in striving for ideal conditions of health he is eliminating himself, but we are proud that the medical profession as a whole stands among the foremost agencies promoting public health. I surmise, however, that the doctors need have no fear of starvation in that future day of universal health, as it is probable that it will take full as many and wiser physicians to preserve this ideal state as to-day are required to try and combat the inroads of disease.

## Retrospect.

If on an anniversary day like this one were to cursorily look backward over the line of march of progressive medicine, milestones something like this might be seen:

1656—Preventive measures used against scurvy, in Rome.

1780—Cause of scurvy recognized.

1796—Vaccination against smallpox by Jenner.

1834—First step taken by a government to organize a national department of health on modern lines, *i. e.*, commission appointed in England to investigate cholera.

1840—General anesthesia discovered; chloroform and ether.

1847—Modern pathology. Virchow.

1861—Cause of puerperal fever recognized. Semmelweise.

1867—Antiseptic and aseptic surgery. Lister, Billroth.

1889—Modern bacteriology. Pasteur, Koch.

In the records under any of these headlines, one could find set forth at length, many of the triumphs of man in the prevention of disease. The reduction in the mortality records and the disappearance of epidemics are the best tributes to the work of our predecessors in the medical profession. These words are apt to fall on our ears as the mere patter of congratulatory verbiage; to bring their significance vividly to mind, glance at the mortality record of bubonic plague.

| | Population | |
|---|---|---|
| 1603—Epidemic in London | ..... | 38,000 died |
| 1609—Epidemic in London | ..... | 11,785 died |
| ....—Epidemic in Egypt | ..... | 1,000,000 died |
| 1625—Epidemic in London | ..... | 35,000 died |
| 1636—Epidemic in London | ..... | 10,000 died |
| *1656—Epidemic in Naples | ..... | 30.000 died |
| 1656—Epidemic in Genoa | ..... | 60,000 died |
| 1665—Epidemic in London | 460,000 | 68,596 died |
| 1679—Epidemic in Vienna | ..... | 76,000 died |
| 1681—Epidemic in Prague | ..... | 83,000 died |
| 1704—Epidemic in Stockholm | ..... | 40,000 died |
| 1720—Epidemic in Marseilles | ..... | 50,000 died |
| 1770—Epidemic in Poland and Hungary | ..... | 300,000 died |
| 1771—Epidemic in Moscow | ..... | One-quarter of the population died. |

*In this same year there was an epidemic of bubonic plague in Rome. Sanitary precautions were instituted in a crude manner and in the "Eternal City" only 14,000 died.

Under sanitary measures, plague disappeared from Holland and France in 1668; from England in 1679; from Spain in 1681; and from Germany in 1683.

The Registrar-General's Report (England 1871-1880) says: "The change in death rate has given to the community an annual addition of 1,847,000 years of life shared among its members, and allowing that the change in the death rate is the direct consequence of sanitary interference, we must regard this addition of nearly 2,000,000 years of life as an annual income derived from money invested in sanitation."

The actual cause of plague was not discovered however until the Hong Kong epidemic of 1894. Think what it would mean to us if a wave of mortality equal to the least of these quoted above should strike Boston or New York. Similar figures could be quoted in typhus fever, cholera, smallpox diphtheria, etc., but time will not permit.

Let us turn to one of the more recent accomplishments in preventive medicine and one which lends lustre to the fame of American investigators. In 1853, 1867, 1873, and 1878 there were great epidemics of yellow fever in Florida, Alabama, Louisiana, Mississippi, Arkansas and Texas—the terror it inspired and the mortality entailed may be recalled by some of my hearers. Yellow fever was then regarded as climatic and a necessary evil which it was folly to combat. The achievements of Finley, Reed, Lazear, Carroll and Gorgas have not only eliminated yellow fever from the United States but has attacked and controlled this disease as well as malaria and smallpox in Cuba and Panama making the tropics habitable for civilized man. In Havana, yellow fever had been endemic since 1762, hardly a month had passed without one or more deaths from that disease since 1850; smallpox was also endemic. In 1902, seven months passed without a single case. Enforced vaccination, quarantine, and isolation brought about two years without a single case. The annual mortality on the Island of Cuba was reduced from 21,252 to 5,700; which means that over 15,000 lives are saved each year.

## Prospect.

To-day we stop and take pause, looking backward toward our college days, thinking of the part each one of us has had

in the applications of these discoveries of the past. It is well to take thought before plunging again into the activities, work, trials, and such triumphs as may fall to our lot in life's struggle on the morrow.

It is a well-recognized "truism" among business men that "A pessimist never accomplishes anything. Be an optimist." I hope that most of us have struggled through that "slough of despond," generally called "therapeutic nihilism;" that terrible night filled for the most part with gropings after theory, exhaustive consideration and long dissertations of etiology (imaginary not real), extenuated pathology, followed by a treatment consisting of "gun-shot" prescriptions; vaunted, but suspiciously numerous, specifics; and exaggerated materia medica; or else a treatment distinguished by its brevity and vacuity.

It was and is necessary to live through that period when scientific therapy awaits the completion of scientific discovery and investigation. We are just beginning to reap the benefits of the long, arduous and heroic labors of scientific minds in our laboratories. It has been discouraging to have to wait so long but we should be thankful that our activities fall in a generation when each year brings surprising triumphs.

The enlightened surgeon by his "perfected technique" can apply the gentle arts of plumbing and carpentry to any part of the human body; he must not only be a physician and a scientist but he must also be a pathologist and a mechanic. The day is fast passing when an operator will be allowed to cut out symptoms instead of recognizing and correcting causes of disease. The anchoring of kidneys in cases of general gastro- nephro- hepato- entero- spleno-completoptosis; ovariotomy or hysterectomy (with the accompanying remark of "cystic condition") in neurotic patients; appendectomies in cases of colitis, constipation, or ureteral calculi; the diagnosis of "sciatica" or "rheumatism" in cases of pronated feet or slipped innominate bones; the treatment of simple lateral curvature by jackets entailing an "atrophy of disuse" instead of giving the patient corrective physical development; the operation of cervical adenectomy for tubercular glands without the elimination of tubercular tonsils; are a few examples of things which will not be condoned in the future.

The ever developing corps of specialists is attracting new de-

votees from the ranks of the general practitioner and providing us with skilled technicians for selected classes of cases.

We have the internist with his applications of physiological chemistry, perfected methods of clinical diagnosis, and the elicitation of physical signs; reinforced with the results of serotherapy, immunity and opsonins; making use of the researches of Metchnikoff and Chittenden; understanding what we have come to call "Fletcherism;" recognizing the direct bearing these matters have on auto-intoxication, blood pressure, arterio-sclerosis and their value in effecting the length of human life.

As the physician learns the "relation of the" laws of mechanics to physiology, more due to his closer acquaintance with physical methods of therapy (and his own automobile, if you please) he will acquire greater insight, consideration, and reverence for the "human machine." As a representative of that highest department of sanitary engineering, the Doctor of the human body, he will insist that the perpetual pump (the heart), the automatic bellows (the lungs), the self-regulating filtration plant (the kidneys), the sewage disposal plant (the bowels and skin), the executive board and central telegraph system (cerebro-spinal system), and all the other innumerable component parts of the human machine, shall be neither neglected nor overworked and each part shall have its due consideration and care. He will call attention to the fact that while a steam engine is fed coal evenly, regularly and scientifically by a trained fireman under the direction of an experienced engineer which results in rapid oxidation with flame and heat, and that scientific supervision is necessary in order to obtain the maximum output of energy from the combustion, to avoid burning out the boilers, the clogging up of the firepot with clinkers, and the accumulation of "scale" in the pipes, so the human engine must be fed regularly, properly, not too fast, not too much at one time. Each individual must be taught to give some thought to "chewing" his food; that the ingestion of food is followed by a process analogous to that in the engine, i. e., slow oxidation without flame, but with heat; that it behooves him not to fire *anything* into his stomach that his hand may come to, not to give his food a "lick and a promise" instead of a thorough mastication, not to seek to satisfy his appetite by bolting his food until the walls of his stomach are distended, thereby making himself the victim of innumerable sequelæ in the form of gastro-intestinal ills, but to seek rather to chew his

food well, satisfying his sense of taste which is in his mouth, thereby avoiding an overload of waste and indigestible boluses. Man is equipped with a stomach, not a gizzard. Eating is a function and should be enjoyed; it should not become automatic.

This work will be furthered by the general adoption in schools of physical examinations and physical instruction—training the young mind to appreciate the only "fool-proof" machine extant.

The doctor of the future will be too broad to confine his practice to any one school. Bye and bye he will learn that every cult that gains extensive vogue must have something of merit. He will search this merit out, appropriate it to his own uses, and his dictum will be, "The simplest thing that cures, come from whom or whence it may."

The Rœntgen rays are fast approaching that degree of accuracy which make them quite as useful to the internist as they have long been to the surgeon.

In the realm of diagnosis, the examination of gastro-intestinal cases is much simplified by the ingestion of bismuth, showing the exact shape, size, and location of the stomach, the character of peristalsis, presence or absence of ulcers, diverticula, locus of obstruction, as well as ptosis in any part of the intestinal canal and especially in the colon; the examination of the lungs will reveal the presence, situation, and extent of tubercular areas before they will have given rise to any physical signs; the examination of the heart, blood vessels and mediastina will frequently give invaluable information. For the discovery of the extent and location of sinuses, either with or without the use of bismuth, the X-rays stands unrivaled.

In the realm of therapy, it becomes us to be conservative as to the X-rays. Certain it is, however, that the rays are specific cures for some forms of skin cancers, certain parasitic diseases, tubercular glands (before pus formation). They also have an inhibitive, if not a curative action on (1) many forms of carcinoma and sarcoma, including those of the breast and neck, (2) spleno-myelogenous, chronic lymphatic, and pseudo-leukæmia. Many representative surgeons are having the sites of removal of malignant growths rayed post-operatively because they recognize the improvement in their statistics as a result of such treatment.

The present campaign against tuberculosis with the international meeting at Washington, together with the attitude of all

the political parties in the recent presidential elections in favor of the establishment of a portfolio of national health in the cabinet of the president are indications of the growing and important future of preventive medicine.

In conclusion, gentlemen, this address does not pretend to be historically complete, but if you have been reminded by it of some of the glorious achievements of our profession in the past and have caught a fleeting glimpse of the future, imperfect as it must be—if we leave this meeting refreshed and energized by our little halt of inspection and inventory—the object of this paper has been attained. Though much of merit has been omitted, I hope enough has been mentioned to make us eager to again push on to engage in our noble but arduous profession.

In parting, I wish to ask what we will be designated as in the future. Certainly we have countenanced outgrown and misleading titles long enough. Doctor of medicine is not adequate, for we do not limit our therapeutic measures to medicine; in fact, we are using drugs less each year. Not physicians, for we have long since ceased to be prescribers of physic alone. The term may imply more of the nature of a physicist, but it is not generally so construed. Is it not time that each of us aspired to the dignity of being a Doctor of Sanitary Science?

# Editorial

He was one of those highly successful New York physicians who are famed among the laity for their skill in medicine, and in the profession for their skill at hocus-pocus. He is a specialist in what I may call the diseases of the idle rich—boredom, exaggeration of a slight discomfort into a frightful torture, craving for fussy personal attentions, abnormal fear of death, etc. He is a professional "funny man," a discreet but depraved gossip, and a tireless listener, and is handsome and well-mannered. He has a soft, firm touch on pulse and on purse. The women adore him—when they want to rest, they complain of nervousness and send for him to prescribe for them. One of his most successful and lucrative lines of treatment is helping wives to loosen the purse-strings of husbands by agitating their sympathies and fears. He never irritates or frightens his clients with unpleasant truths. He doesn't tell the men to stop eating and drinking and the women to stop gadding. He gives them digestion-tablets and nerve-tonics and sends them on agreeable excursions to Europe. Of all the swarm of parasites that live upon rich New Yorkers none keeps us a more dignified front than Dr. Hanbury.

DAVID GRAHAM PHILLIPS.

*The Master Rogue.*

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**A Co-operative Medical Library**

The enormous volume of medical literature, which is accumulating so rapidly under the modern stress of scientific discovery and the availability of the printing press, has practically annihilated private collection. Beyond a few books of reference and some standard works on general or special practice, the physician's library cannot be successfully developed. For any pursuit of special and exact information co-operation for the creation of a general library available to all is the only resource. Many local efforts in this direction have been made, and as a typical and successful result the New Library of Medicine of Newark, N. J., may be cited. The scheme adopted there may be generally imitated, and physicians, even in small communities, may find the way to have at hand an available and exhaustive library.

The Medical Library established by the physicians of Newark is entering on the fourth year of its existence.

A few leading physicians several years ago discussed the city's need of a collection of recent medical books and of the best current periodical medical literature. The suggestion of a Medical Library Association was made; this association to have independent existence for the sole purpose of establishing a medical library. A subscription list was quietly but persistently circulated among the physicians of Newark and adjacent towns. This list was headed with a general statement in regard to the Medical Library. It was plainly shown that if it were established, no medical interest would be neglected. It also stated that the medical library association, if formed, would have the co-operation of the Free Public Library. All subscribers were asked to pay the same amount, $3.00 a year. When the number reached 130 an organization was effected. A small working board of trustees was decided on and the purchase and installation of books and journals began.

The association made arrangements with the Public Library whereby the latter institution agrees to house and care for the association's books and promote their use and to furnish a good line of medical journals each year. The members of the Medical Library Association each pay $3.00 per year. This has brought in nearly $500 annually, which has been expended in the purchase of the latest medical books, title to which remains with the Association. Choice has usually been made of books which the average medical practitioner finds too expensive or too special for his shelves. For periodical literature and other minor expenditures, the public library has contributed several hundred dollars annually. The collection contains now about 500 volumes of good books, and 200 volumes unbound, of the best medical journals of England, France, Germany and America, with current numbers of the same, all conveniently arranged and easily accessible in the Free Public Library.

In view of Newark's peculiar conditions—its medical men being only an hour away from the great library of the Academy of Medicine in New York—it has naturally been the policy of the Newark Association to keep its collection distinctly modern. In time it may prove wise to add to it complete files of two or three of the best medical journals, American and English. Beyond this, in medical history, it does not seem wise for it to go. The col-

lection will be kept fresh and up-to-date and special stress will be laid on indexes of all kinds. Thus, the physician coming to this working collection, can see what has been said in the past twelve or eighteen months on the subject in which he is interested; then, from the indexes, he can learn where and when and how it has been treated in previous years; and can easily send to the Surgeon General's Library in Washington for such references as he wishes to see or can himself make a few trips to the Academy of Medicine Library in New York.

At the close of its third year, the medical men of Newark who have fostered this collection feel that, as the membership has not fallen off and as the use of the books has steadily increased, the venture may be pronounced a decided success.

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## Little Biographies

### XXXIV. SKODA.

SKODA — Skoda's Sign — Skodaic Resonance! How many of us could, if asked about this man, this sign, this resonance, say more than that this is an increased percussion—resonance at the upper part of the chest, with flatness below it; a sign of pleural effusion, or of a consolidation in pneumonia below it, and that we *think* it was named for J. Skoda, a Viennese physician, because he first described it? And yet here *was* a man—one of those who, with Oppolzer, Rokitansky and Hebra, made Vienna and its university famous as a medical center in the early part of the nineteenth century—the man who rescued the teachings of Auenbrugger on the subject of percussion in thoracic diseases from oblivion, who corrected the errors of Laennec in regard to auscultation, who pointed out the fallacies of Piorry's fantastic assumptions; the man whose assertions have stood the test of time and study and whose teachings on physical diagnosis in thoracic diseases are accepted to-day, to whom we owe more than we do to any other one man, for what we now could not practice medicine without, auscultation and percussion.

In 1835, when the most flourishing time of the French school had passed and before the completion of its work, there ap-

peared on the horizon at Vienna two stars, Skoda and Rokitansky, who finished this incomplete work, the former being the subject of this sketch.

Joseph Skoda was born of obscure and poor parents in Pilson, Bohemia, on December 10th, 1805. He began the study of medicine at the age of twenty, graduating at the University of Vienna in 1831. He returned at once to his native country, where he attracted such attention by his excellent work in the cholera epidemic that in 1833 he was appointed physician to the Allgemeine Krankenhaus.

During his student life his attention had been called, by his preceptors, Heine and Gutbrod, to Laennec's studies on auscultation, which may account for his so soon turning away from the (then) unscientific German school, for in 1839 he published his still famous "Abhandlung über Perkussion und Auskultation," a work which deservedly passed through many editions and was translated into many languages. In this and in following treatises he swept away the antiquated and unscientific teachings of the Germans, and elaborated and perfected, at the same time eliminating the guesswork in, the theories of Laennec and his colleagues.

To quote one of his "Germanically" verbose biographers: "From this time facts and progress fell down before him like ripe fruit." To him is due all of exactness which we have in auscultation and percussion. He formulated his laws on the well-known laws of acoustics and based his conclusions, not on guesswork and superficial observation as was the case with his precursors, but upon the study of the healthy organism, the diseased body, and the cadaver. Let us again turn to Heitler's "Historische Studie:" "Under Corvissart and Laennec percussion made no progress; it even retrograded; but while the discoverer of auscultation did not appreciate percussion at its true value, Piorry, the inventor of the pleximeter, made some advance. But how fantastic his claims! Each organ had its especial sound —'lung sound,' 'heart sound,' 'liver sound,' 'spleen sound,' etc. He asserted that he could point out by means of percussion the thickness of the walls of the heart, the exact border between the right heart and the left, that he could distinguish the dulled sound of the inflamed tissues of the lungs from that caused by a conglomerate of tubercles," and other things fully as preposterous. Skoda put an end to all these exaggerations and errors by

his fundamental theses: "All fleshy organic parts that do not contain air except drawn membranes and fibres, give an entirely dull and empty percussion sound, scarcely audible, which you can produce by striking upon the thigh. Therefore the fleshy organs that do not have air cannot be distinguished from the fluids by the percussion sound. Only bones and cartilages give a special sound when knocked upon. Every sound obtained by percussion on the thorax or abdomen and that varies from the sound of the thigh or bone is caused by air or gas in the chest or abdomen." Skoda proved that the difference in the sound near the organs is not due to the peculiar sound of the organ, but comes from the difference in the quantity of air in it and from the difference in the strength of the shock produced by percussion over the air. The results obtained through resistance felt through percussion and by which Piorry claimed he could distinguish an exudate from a hepitization or tuberculous infiltration were reduced to their proper value by Skoda, and experience shows that the delicacy of our touch has not greatly increased since his labors and works.

Skoda pointed out that, valuable as auscultation and percussion are, they only decide the physical changes induced by the diseased process, not the process itself, which must be determined by the help of other means.

As a testimony that in the land of Laennec and Piorry, whom he had criticised unsparingly, the merits of the Vienna physician were well recognized, we have the "bruit skodique," familiar to us all as the skodaic resonance.

The old theorists did not yield without a hard struggle, for there was no middle ground between Skoda's facts and their assumptions; they felt that the ground was giving way beneath their feet and decided that this man must be annihilated. The fight was a most bitter one, and Skoda, poor, with but little influence and depending upon a few of the older men for his subsistence, fought with the means which despair put into his hands. For ten long years the battle raged, but his strong mind and healthy body stood him in good stead and he constantly rose higher and higher in the medical and scientific world until at this time no one could refute him; the truth of his new teachings had been proven. He was now physician-in-chief at the Allgemeine Krankenhaus, was in 1846 appointed Professor of Clinical Medicine, in which position he added in no small degree to the

fame of the Vienna school. His success was great and physicians from all countries came to learn from him. In 1875 he received the congratulations of all the bodies of learned men in Vienna; a gold medal being struck to commemorate the event. Skoda was not a prolific writer, in fact the most important writing of his being the "Abhandlung über Perkussion und Auskultation." Among others was one published in the *Monthly Journal of Medical Sciences,* Edinburgh, "Functions of the Papillary Muscles of the Heart," and "Referat über den Inhalt der Berichte, welche über den Kretinismus in der Ostereichischen Monarchie eingelangt sind," and one called "Chronische longontsteking."

The final years of his life were spent in lingering pain, and at the burial of Rokitansky, "the dying Skoda had himself lifted from his bed of anguish * * * to the grave yard where he watched the last of the friend whom he had loved all life long. And as he watched he envied him the great rest which that friend had found, while bodily suffering wrung from him the cry, 'I cannot die and yet is my pain no less than his.'"

Skoda's liberality was as great as it was unostentatious, for he gave freely to the poor, both services and money, and contributed 14,000 florins to institutions for the relief of distressed medical men, their widows and orphans.

His death occurred on June 13th, 1881.

SPENCER L. DAWES.

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# Public Health

**Edited by Joseph D. Craig, M. D.**

DEPARTMENT OF HEALTH—ALBANY, N. Y.

ABSTRACT OF VITAL STATISTICS, NOVEMBER, 1908.

*Deaths.*

| | 1904 | 1905 | 1906 | 1907 | 1908 |
|---|---|---|---|---|---|
| Consumption | 18 | 24 | 13 | 24 | 6 |
| Typhoid fever | 1 | 5 | 2 | 0 | 3 |
| Scarlet fever | 0 | 0 | 0 | 1 | 0 |
| Measles | 0 | 0 | 0 | 0 | 0 |
| Whooping-cough | 0 | 0 | 0 | 0 | 0 |
| Diphtheria and croup | 2 | 0 | 3 | 6 | 3 |
| Grippe | 0 | 0 | 0 | 0 | 0 |
| Diarrheal diseases | 3 | 4 | 0 | 3 | 1 |
| Pneumonia | 10 | 10 | 6 | 8 | 13 |
| Broncho-pneumonia | 0 | 10 | 2 | 2 | 5 |
| Bright's disease | 19 | 7 | 7 | 16 | 14 |
| Apoplexy | 12 | 5 | 10 | 8 | 9 |
| Cancer | 12 | 4 | 3 | 13 | 8 |
| Accidents and violence | 9 | 16 | 5 | 6 | 9 |
| Deaths over seventy years | 27 | 29 | 15 | 43 | 21 |
| Deaths under one year | 8 | 21 | 18 | 10 | 24 |
| Total deaths | 131 | 151 | 123 | 154 | 132 |
| Death rate | 15.93 | 18.36 | 14.95 | 18.72 | 16.05 |
| Death rate less non-residents | 14.59 | 15.92 | 14.10 | 16.17 | 13.01 |

*Deaths in Institutions.*

| | 1904 | | 1905 | | 1906 | | 1907 | | 1908 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Resident | Non-resident | Resident | Non-resident | Resident | Non-resident | Resident | Non-resident | Resident | Non-resident |
| Albany Hospital | 10 | 7 | 5 | 7 | 9 | 2 | 14 | 9 | 5 | 15 |
| Albany County Jail | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Albany Orphan Asylum | 0 | 0 | 1 | 3 | 1 | 0 | 0 | 0 | 0 | 0 |
| County House | 5 | 0 | 2 | 0 | 7 | 2 | 1 | 2 | 2 | 0 |
| Homeopathic Hospital | 2 | 1 | 1 | 1 | 3 | 0 | 2 | 1 | 4 | 0 |
| Hospital for Incurables | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| House of Good Shepherd | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Little Sisters of the Poor | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 4 | 0 |
| Public places | 3 | 1 | 1 | 2 | 1 | 0 | 2 | 4 | 1 | 4 |
| St. Margaret's House | 0 | 0 | 2 | 1 | 0 | 0 | 1 | 0 | 1 | 0 |
| St. Peter's Hospital | 2 | 5 | 4 | 2 | 5 | 2 | 7 | 5 | 5 | 1 |
| Home for Aged Men | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Child's Hospital | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |
| Sacred Heart Convent | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| St. Frances De Sayles Orphan Asylum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |

| | |
|---|---|
| Births | 101 |
| Still births | 3 |
| Premature births | 4 |

## Bureau of Plumbing, Drainage and Ventilation.

In the Bureau of Plumbing, Drainage and Ventilation there were one hundred and seventy-four inspections made of which one hundred and twenty-seven were old houses and forty-seven new houses. There were seventy-seven iron drains laid, forty-five connections to street sewers, forty-six tile drains, two urinals, fifty-three cesspools, fifty-eight wash basins, sixty-eight sinks, fifty-eight bath tubs, forty-five wash trays, four trap hoppers, eighty-nine tank closets. There were one hundred and seventy-five permits issued of which one hundred and forty-five were for plumbing and thirty for building purposes. There were forty-four plans submitted of which six were of old buildings and thirty-eight of new buildings. There were five houses tested, one with blue or red and four with peppermint. There were twenty-three water tests made. Seventeen houses were examined on complaint and one hundred and thirty-one were re-examined. Nine complaints were found to be valid and eight without cause.

## Bureau of Contagious Diseases.

*Cases Reported.*

| | 1904 | 1905 | 1906 | 1907 | 1908 |
|---|---|---|---|---|---|
| Typhoid fever | 4 | 7 | 11 | 5 | 3 |
| Scarlet fever | 17 | 21 | 6 | 18 | 7 |
| Diphtheria and croup | 12 | 16 | 50 | 26 | 12 |
| Chickenpox | 16 | 7 | 2 | 5 | 15 |
| Measles | 1 | 2 | 0 | 29 | 1 |
| Whooping-cough | 0 | 0 | 0 | 7 | 0 |
| Consumption | 3 | 2 | 1 | 37 | 31 |
| Totals | 53 | 55 | 70 | 127 | 69 |

*Contagious Disease in Relation to Public Schools.*

| | *Reported* | | *Deaths* | |
|---|---|---|---|---|
| | D. | S. F. | D. | S. F |
| Public School No. 6 | 1 | .. | 1 | .. |
| Public School No. 7 | 1 | .. | .. | .. |
| Public School No. 15 | 1 | .. | .. | .. |
| Public School No. 21 | 1 | 1 | .. | .. |
| Public School No. 24 | .. | 3 | .. | .. |
| High School | .. | 1 | .. | .. |
| St. Patrick's School | 2 | .. | .. | .. |
| Lady of Angels | 1 | 2 | .. | .. |

Number of days quarantine for diphtheria:
Longest..... 24 Shortest..... 4 Average..... 14 1/12
Number of days quarantine for scarlet fever:
Longest..... 41 Shortest..... 12 Average..... 26 5/6
Fumigations:
Rooms..... 126 Houses..... 26

| | |
|---|---|
| Cases of diphtheria reported | 12 |
| Cases of diphtheria in which antitoxin was used | 12 |
| Cases in which antitoxin was not used | 0 |
| Deaths after use of antitoxin | 2 |

## Bureau of Pathology.

*Bender Laboratory Report on Diphtheria.*

| | 1904 | 1905 | 1906 | 1907 | 1908 |
|---|---|---|---|---|---|
| Initial positive | 11 | 12 | 30 | 15 | 17 |
| Initial negative | 35 | 29 | 40 | 39 | 20 |
| Release positive | 2 | 13 | 40 | 33 | 2 |
| Release negative | 14 | 16 | 45 | 109 | 19 |
| Failed | 0 | 0 | 11 | 9 | 4 |
| Total | 62 | 70 | 166 | 205 | 62 |

Test of sputum for tuberculosis:

| | | |
|---|---|---|
| Initial positive | 8 | 2 |
| Initial negative | 5 | 13 |

## Miscellaneous.

| | |
|---|---|
| Mercantile certificates issued to children | 17 |
| Factory certificates issued to children | 10 |
| Children's birth records on file | 27 |
| Number of written complaints on nuisances | 23 |
| Privy vaults | 1 |
| Plumbing | 13 |
| Other miscellaneous complaints | 9 |
| Total number of dead animals removed | 494 |
| Cases assigned to health physicians | 71 |
| Calls made | 253 |

# Society Proceedings

## Medical Society of the County of Albany.

### Semi-annual Meeting.

The semi-annual meeting of the Medical Society of the County of Albany was held in the Alumni Hall of the Albany Medical College Wednesday, October 14, 1908. The meeting was called to order at 8:30 P. M., President MacDonald in the chair.

The following members were present: Archambault, J. L., Archambault, L., Bedell, A. J., Blessing, Case, Cook, Craig, Devoe, Finch, George, W. H., Hinman, Jenkins, Keens, Lanahan, Lawrence, Lempe, Lomax, MacDonald, Merrill, Moore, C. H., Murray, O'Leary, D. V., Jr., Pease, Rulison, H., Rulison, L. B., Rooney, Shaw, Skillicorn, Travers, Vander Veer, A., Vander Veer, J. N., Ward.

Dr. MacDonald in opening the meeting said, "I can only say to you with this first intervening meeting how deeply I appreciate the honor you have conferred upon me by my election. It is hardly necessary to say more, except that I shall endeavor, with the assistance of all, to make this year as useful and as fruitful as possible."

1. *Reading of minutes of the last regular meeting.*

On motion of Dr. Bedell, the reading of the minutes was deferred.

2. *Reports of officers and committees.*

No committees reported at this meeting.

The President announced the appointment of the committees:

Committee on Public Health—Drs. J. D. Craig, L. B. Rulison, H. E. Lomax.

Committee on Legislation—Drs. G. G. Lempe, J. A. Cox, E. J. Bedell.

Committee on Milk Inspection—Drs. J. P. Boyd, H. L. K. Shaw, S. B. Wolbach.

3. *Election of members.*

A communication from the Board of Censors was read recommending for membership, Dr. George P. Pitkin. Dr. Craig moved that the Secretary be instructed to cast one ballot for Dr. Pitkin. Motion seconded and carried. The Secretary cast the ballot and Dr. Pitkin was declared elected.

4. *Vice-President's address.*

The Vice-President, Dr. Pease, delivered an address on "The International Tuberculosis Congress."

It was moved that a vote of thanks be given to Dr. Pease for his address. Motion seconded and carried.

Dr. Craig asked what was the opinion at the Congress concerning vaccines.

Dr. Pease replied: The general opinion as expressed at the Congress regarding the use of the ophthalmic and cutaneous tuberculin reactions was to the effect that both are very reliable as indicating the presence of healed and latent tuberculosis and of considerable value as indicating existing acute disease. They sometimes fail to be positive in advanced

cases. It is likewise generally conceded that the cutaneous test is much to be preferred for use in infants and children and the ophthalmic test is more satisfactory in adults. The cutaneous test is entirely harmless, and in but few cases have bad results been noted in the use of the ophthalmic test when the correct solutions are used and the proper precautions observed.

5. *Election of delegates.*

The President called for nominations for delegates to the State Society in place of Drs. MacDonald and Craig.

Dr. A. Vander Veer nominated Dr. MacDonald to succeed himself and Dr. Craig to succeed himself. There being no other nominations Dr. Ward moved that the Secretary be directed to cast one ballot for Drs. MacDonald and Craig. Motion seconded and carried. The Secretary cast the ballot and Drs. MacDonald and Craig were declared elected.

Dr. H. Rulison nominated Dr. Arthur J. Bedell for delegate to the 3rd District Branch. No other nominations being made, Dr. Ward moved that the Secretary be directed to cast one ballot for Dr. Bedell. Motion seconded and carried. The Secretary cast the ballot and Dr. Bedell was declared elected.

6. *No unfinished business was considered.*

7. *New business.* Dr. Vander Veer offered this resolution.

"The following amendment to the By-laws is presented:

"That a Committee on Certified Milk, to consist of three members, be appointed by the President."

The following letter was read by the Secretary:

The Medical Society of the County of Genesee.

Batavia, N. Y., *September* 15, 1908.

*Dr. A. J. Bedell,* 354 *State street, Albany, N. Y.:*

Dear Doctor.—At the last meeting of the House of Delegates of the State Society, the utility of the annual directory of New York, New Jersey and Connecticut was discussed but no action was taken. Our society has adopted the following resolution:

"*Resolved,* That this society is opposed to the publication of the directories of New Jersey and Connecticut by the State Society, and further, that a directory of the physicians of New York State should be published at least once in five years, with an appendix to be published yearly."

Our contention is that the money spent yearly for this expensive work could be better expended for other purposes, as, for instance, in improving the Journal of the Society. Our delegate to Albany will be instructed accordingly.

Will you kindly bring this matter before your society at its next meeting, in order that your delegate to the January meeting may be instructed regarding the sentiment of your society?

Very cordially yours,

G. W. Cottis,

*Secretary.*

Dr. Craig moved that the resolution be referred to the Comitia Minora for consideration and that they should report to the society. Carried. The President announced that the next meeting would be held in conjunction with the local committee of the State Charities Society. The meeting is to be "popular" and arrangements will be made to secure a large hall. The names of several speakers who had promised to attend were announced and the members were urged to be present.

On motion of Dr. Jenkins, the Society adjourned at 9:35 p. m.

Joseph A. Lanahan, *Secretary.*

Willis G. MacDonald, *President.*

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New England Alumni Association of the Albany Medical College.

The tenth annual meeting of the New England Alumni Association of the Albany Medical College was held at the Cooley House, Springfield, Mass., November 19, 1908.

A large and enthusiastic group of physicians representing all the New England States were present and after an hour of social intercourse in which the college and its teachers were the central topics of story and reminiscence, the meeting was called to order by the Vice-President, J. J. Osterhout, of Keene, N. H., the President, Dr. C. W. Skelton, of Providence, R. I., being unavoidably detained from being present.

After a few congratulatory remarks he introduced Dr. Arthur Holding, Lecturer on Radiography and Hydro-Therapeutics in the Albany Medical College, who gave a very graphic address on "New Means and Methods of Treatment" and some of the newer physiological studies of diseases and means of prevention. He described at some length the chemico-physiological changes that were traceable to bad diet, exhaustion and other conditions, the recognition of which was followed by a new therapeutics. He pointed out the value of electrical light, particularly in diagnosis, and its possibilities as a therapeutic agent, also of water and its place as an agent both in the prevention and as assistant in the curative processes. He indicated that the marvelous advances in surgery were duplicated in medicine and the practical treatment of disease was undergoing a revolution, not only from new conceptions and methods of diagnosis, but from the use of agents of which fresh air, water and many other common means, now neglected, were coming into great prominence. He presented the greetings of the faculty and earnest hopes that each alumnus would visit the college and become more intimately acquainted with its work. A very animated discussion followed this paper in which nearly every member present participated, giving facts and reminiscences showing that they were fully alive to the most advanced thoughts in surgery and medicine.

Dr. Murphy offered a resolution that the warmest thanks be extended to the speaker for his able and interesting address and that he be requested to prepare a copy for publication in The Annals. Also, that the association as a whole expressed their warmest views to the faculty of the college, and their ardent wish to be helpful in any way to promote its best interest.

This was carried by a rising vote. Officers for the coming year were then elected as follows:

J. J. Osterhout, M. D., Keene, N. H., for President; W. G. Murphy, M. D., Hartford, Conn., Vice-President; E. C. Collins, M. D., Springfield, Mass., Secretary; A. G. Hoadley, M. D., Northampton, Mass., Treasurer. Committee of arrangements: H. W. Van Allen, M. D., Springfield, Mass.; W. W. Broga, M. D., Springfield, Mass.; W. G. Murphy, M. D., Hartford, Conn. Executive board: Geo. B. McGraw, Eliphalet W. Wright, Frederick T. Clark, W. W. Broga, Leland L. Fillmore, Geo. H. Janes.

It was voted that Springfield, Mass. be the next place for the annual meeting, and that Dr. Crothers, of Hartford, Conn., draw up resolutions and present an obituary notice of the late Dr. George J. Holmes, of New Britain, Conn., a charter member of the Association. Dr. T. D. Crothers, of Hartford, Conn., offered the following preamble and resolutions which were passed unanimously:

*Whereas,* the recent death of Dr. George J. Holmes, of New Britain, Conn., a graduate from the Albany Medical College of the class of 1882 and a charter member of our New England Alumni Association, has taken from our midst an earnest devoted man whose personal influence and desires to make the world better, is an example and object lesson which we would do well to note,

*Therefore,* be it resolved that we especially recognize his active interests in our Association and very ardent desire to secure an endowment for a new building of the Albany Medical College and make it one of the great institutions of the country. While pursuing his special work upon the eye and ear he became a heavy investor in mining stocks with the single purpose of securing money to build and endow a new college building at Albany. This was the one ambition of his life and had he lived, this would have been accomplished. At his death these stocks were scattered, and the purpose of his life, which was not put into writing, and only known to his intimate friends was prevented.

*Resolved,* that we make this record on our minutes as a most grateful recognition of his life and work, and the plans he had proposed to carry out, and also his intense desire to be helpful to others and leave the world better for having lived. We also extend our deepest sympathies to his relatives and sorrow at the great loss we have sustained, and desire to make this note a part of the records of our annual meeting, and that a copy be published in the ALBANY MEDICAL ANNALS, as an indication of the devotion and lofty spirit of gratitude which he entertained to his Alma Mater.

The Association then adjourned for the banquet at 6 p. m. Dr. Crothers, of Hartford, acted as toastmaster and a very delightful evening was spent, every member contributing by stories and remarks concerning the old college and their experiences.

Dr. ARTHUR HOLDING'S reply to the toast of the faculty brought out a very stirring appeal to the Alumni to aid in the permanent endowment fund. This was followed by Dr. Carmichael, of Springfield, Mass., who gave with much detail the story of securing the funds and building one

of the finest hospitals in this country as a memorial for the late Mr. Wesson who contributed over half a million dollars for this purpose.

Drs. VAN ALLEN, of Springfield, and MURPHY, of Hartford, Conn., both spoke of the success of the Alumni in the New England States and the need of co-operation. With hardly an exception in every community they have become leading practitioners, and have reflected the special personal teachings of their Alma Mater in a very striking degree.

Other remarks indicated very clearly that the different members of the Association were thinking of and discussing the most advanced topics of medicine along the very frontier lines of research. Of course most New England communities are deeply concerned in what is called "high thinking," and the doctors who do not lead in this, are not regarded very highly. It was very evident that the Alumni of the A. M. C. are doing their share in the field of progressive thought along the science lines.

The banquet concluded with a visit to the Wesson Memorial Hospital and the Springfield Maternity Hospital, both new buildings, where a reception was given by the trustees of these institutions, followed by some very pleasant remarks.

E. C. COLLINS, *Secretary.*

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# Medical News

**Edited by Arthur J. Bedell, M. D.**

THE ALBANY GUILD FOR THE CARE OF THE SICK—DEPARTMENT OF VISITING NURSING—STATISTICS FOR NOVEMBER, 1908. Number of new cases, 114; *classified as follows:* Dispensary patients receiving home care, 26; district cases reported by health physicians, 8; charity cases reported by other physicians, 40; moderate income patients, 40; old cases still under treatment, 59; total number of cases under nursing care during the month, 173. *Classification of diseases for the new cases:* Medical, 43; surgical, 6; gynæcological, 1; obstetrical under professional care, mothers, 29; infants, 30; eye and ear, 2; dental, 3; contagious diseases in the medical list, 4; removed to hospital, 4; deaths, 8.

*Special Obstetrical Department*—Number of obstetricians in charge of cases, 2; medical students in attendance, 5; Guild nurses, 6; patients, 5; visits by attending obstetricians, 4; visits by students, 32; visits by nurses, 46. Total number of visits for this department, 82.

*Visits of Guild Nurses* (all departments): Number of visits with nursing treatment, 854; for professional supervisions of convalescents, 269. Total number of visits, 1,123. Cases reported to the Guild by three health physicians, three dentists caring for patients at Guild House, and twenty-nine other physicians. Graduate nurses, six, and assistant nurses on duty, three.

*Nurses' Work at the South End Dispensary.*—During the month of November the nurses made 69 visits to the South End Dispensary, averaging 2¼hours each. One hundred and thirty-seven new patients

and 423 old patients were treated—560 in all—divided in clinics as follows: surgical, 13 clinics with 73; nose and throat, 9 clinics with 84; gynecological, 8 clinics with 35; lung clinics, 13 clinics with 56; G. U. and skin, 8 clinics with 41; medical, 11 clinics with 76; children, 11 clinics with 69; nervous, 3 clinics with 5; dental, 3 clinics with 6; stomach, 3 clinics with 12; eye and ear, 8 clinics with 128.

The Albany Guild for the Care of the Sick—Department of Visiting Nursing—Statistics for December, 1908. Number of new cases, 158; *classified as follows:* Dispensary patients receiving home care, 12; district cases reported by health physicians, 8; charity cases reported by other physicians, 82; moderate income patients, 56; old cases still under treatment, 69; total number of cases under nursing care during the month, 227. *Classification of diseases for the new cases:* Medical, 63; surgical, 6; gynæcological, 1; obstetrical under professional care, mothers, 46; infants, 38; dental, 2; skin, 7; throat and nose, 1; infectious diseases in the medical list, 12; removed to hospital, 9; deaths, 6.

*Special Obstetrical Department.*—Number of obstetricians in charge of cases, 2; medical students in attendance, 3; Guild nurses in attendance, 7; patients, 6; visits by attending obstetricians, 2; visits by students, 41; visits by nurses, 55; total number of visits for this department, 98.

*Visits of Guild Nurse* (all departments).—Number of visits with nursing treatment, 1,017; for professional supervisions of convalescents, 413; total number of visits, 1,430; cases reported to the Guild by 3 health physicians and 39 other physicians; 2 dentists; graduate nurses, 7 and pupil nurses on duty, 3; number of clinics attended, 54; number of nurse's visits, 76, averaging two and one-half hours each; number of new patients, 132; number of old patients, 438.

*Clinics.*—Eye and ear, 9, with 98 patients; children, 13, with 57 patients; medical, 14, with 98 patients; stomach, 5, with 16 patients; dental, 3, with 8 patients; surgical, 12, with 96 patients; lungs, 13, with 74 patients; gyneacological, 9, with 33 patients; skin and G. U., 7, with 54 patients; throat and nose, 5, with 25 patients; nervous, 4, with 9 patients.

Troy Orphan Asylum.—Mrs. Peterson, wife of the late well-known Troy coal dealer, Samuel A. Peterson, has offered $50,000 to the Troy Orphan Asylum for the erection of a manual training school.

Charitable Bequests.—By the will of the late Anna Vandenbergh the Albany Hospital receives $5,000; Homeopathic Hospital, $2,000; Albany Orphan Asylum, $3,000.

New Gymnasium for Union College.—In the midst of great enthusiasm $87,000 was pledged by the students of Union College as the foundation of a fund to erect a new gymnasium at a cost of over $100,000.

Cohoes Charity Ball.—The charity ball, which was held in the large, new Fuld & Hatch mill, Cohoes, was attended by five hundred couples. The affair, which was given under the auspices of the Ladies' auxiliary

of the Cohoes Hospital, was held for the benefit of the institution. Guests from Albany, Troy, Mechanicville and Schenectady were in attendance.

Otsego County Medical Society.—At the annual meeting held at Oneonta December 8, 1908, the following named officers were elected: President, Henry D. Sill, M. D.; Vice-President, H. V. Frink, M. D.; Secretary, Henry W. Brown, M. D.; Treasurer, Frank L. Winsor, M. D.; Censor, John H. Moore, M. D.; Delegate to State Society, Julian C. Smith, M. D.; Delegate to Sixth District Branch, Seth A. Mereness, M. D.

The Schenectady Physicians' Hospital was opened for the reception of patients April 10, 1908. It is owned and operated entirely by physicians, has no staff, each man taking his patient there and treating the case in his own way. The hospital of twenty-six beds is under the efficient care of Miss Julia Littlefield as superintendent, assisted by Miss Lewis, head nurse, and Miss Green as operating-room nurse. There is a training school with a class of ten nurses.

During the nine months ending January 5th, the following work was done: Patients admitted, 418; operations performed, 265; improved, 93; cured, 172; died, 11. Medical cases, 90; improved, 59; cured, 31; died (moribund on admission, 4), 14. Emergency cases (accidents, etc.), 63. Births, 3. Surgical cases are classified as follows: Abdominal sections, 156; appendectomies, 47; gall stones, 6; fractures, 12; breast amputations, 4; floating kidneys, 3; vaginal operations, 43; miscellaneous, 47.

Personal.—Dr. Albert Vander Veer is in California for the winter.

—Dr. George B. Stanwix (A. M. C., '98) is now at 141 Warburton Ave., Yonkers, N. Y.

—Dr. S. W. Filkins (A. M. C., '04) is practicing at 500 W. 170th St., New York City. He has an appointment as surgeon of the Bellevue Dispensary.

—Dr. C. W. Louis Hacker (A. M. C., '04), formerly assistant in surgical pathology at the Bender Hygienic Laboratory, has been appointed a member of the resident staff of Augusana Hospital, Chicago, Ill.

—Dr. John S. McCormack (A. M. C., '07) is located at Jamaica Plain, Mass.

—Dr. John Battin (A. M. C., '08) is in practice at Westport, N. Y.

—Dr. S. Silliman (A. M. C., '08) has moved from Nassau, L. I., to Thomaston, L. I.

—Dr. Robert C. Mooney (A. M. C., '08) has resigned from the Homeopathic Hospital staff and has returned to his home in Gloversville, N. Y.

—Dr. Milton W. Platt (A. M. C., '08), after resigning from the Albany Homeopathic Hospital, accepted a position in the State Hospital at Poughkeepsie, N. Y.

—Dr. Frank Garton (A. M. C., '08) has located at 1419 Glover St., Westchester, New York City.

JOHN T. WHEELER, M. D.

*Albany Medical Annals, February, 1909*
*From the Chatham Courier.*

Married.—Dr. Harry E. Mereness, Jr., (A. M. C. '02) and Miss Jessie Northrup, daughter of Mr. and Mrs. Green C. Love, of Portland, Ore., were married late in December at 184 State St., Albany, N. Y. On their return Dr. and Mrs. Mereness will live at 13 South Hawk St., Albany, N. Y.

—Dr. J. N. Vander Veer (A. M. C., '03) and Miss Ida Holt, of Midland Park, N. J., were married December 3, 1908. Dr. and Mrs. Vander Veer will live at 145 State St., Albany, N. Y.

—Dr. Walter E. Hays (A. M. C., '05) and Miss Mary B. Lansing were married in Schuylerville, N. Y., December 29, 1908. Dr. and Mrs. Hays will reside at 500 West 144th St., New York City.

Deaths.—Dr. Edward I. Wood (A. M. C., '65) died at his home in Stillwater, N. Y., November 27, 1908, as the result of angina pectoris.

—Dr. B. R. Holcomb (A. M. C., '61) died recently at his home in Whitehall, N. Y.

—Dr. Henry LaHann (A. M. C., '78) died at Burlington, Wisconsin, of dropsy, December 16, 1908, aged 52.

# In Memoriam

## Memorial of Dr. John T. Wheeler.

By F. C. Curtis, M. D.

Dr. John Thorne Wheeler, of Chatham, Columbia County, N. Y., died at his home on the third day of December, 1908, after an illness of only a few days from pneumonia, aged fifty-eight.

It is not the overstatement customary to fresh biographical literature to say that in his home county the ending of no life—ending in the startling and abrupt way so peculiar to this disease—could have come with such a sense of loss, personal and profound, as this one. He was in the prime of an active career of good service and goodheartedness. He was a well-trained physician with abundance of the art and grasp of his business of which he offered service; back of it was a warm heart of sympathy balanced by wise understanding. Some of us have one, some the other quality, but not often are the two so well combined. They suffice to constitute a personality which was not limited in its influence to the community of which he was a part but drew to him friends who trusted him from a wide circle.

The events of Dr. Wheeler's life were briefly as follows: Born in Albany, December 30, 1850, the only son of Joseph T. Wheeler and Mary A. Backus; his collegiate training was mostly at Yale, his medical at Bellevue where he graduated in 1875; entered at once on the practice of medicine at Chatham, where he had lived since five years of age, and where for the rest of his life he continued, becoming not only the village

doctor but eminent in the profession and his service sought for a wide territory about. He was an active promoter of the interests of the County Medical Society and for a time its president. He was a member of the State Medical Society and this year a vice-president. When District Branch Societies were established he was made president of the Third and for two years inaugurated its work. Last year he was placed in the work of the State Department of Health as director of the division of communicable diseases, and gave conscientious and executive care in his service.

The simple narrative of achievement counts for not much for any of us. The personality and life that constitutes the man, when not only his work has been good but his motives high and his heart right, are what his friends remember and his annalist would picture if he could. It is a kindly, intelligent, sensitive face that looks out from his faithful portrait. He was of a tall, commanding figure, but he was retiring, not self-assertive in the least. He was always deferential to others, but unfailing in emphasizing his own convictions and had a gentle way to make them win, which made him a forceful man. For considerable periods of his earlier life he had to contend with grave disease and the result of serious injury, but of later years he had a fine, erect, robust physique and carriage, and an air of distinction and dignity always lighted up by a kindly, courteous manner. He had a conviction of the peculiar value of a physician, with his training and instincts, in a community, outside of his services as a healer of sick people, and this made him a good citizen. He has spoken of no work in his life with more interest and pleasure than that connected with public education. Only the other day he told me that if he lived out the term to which he had just been elected he would have served on the public school board for thirty years. The fine school building and library of his village, so well conducted that many come from a distance to attend it, will long stand as a worthy monument to him; his body lay with a guard of honor on the morning of his funeral in one of these while five hundred school children and citizens took their last look at him. He held other positions of influence in his community; indeed he had been so important in his citizenship that during the funeral hours all business places were closed in sympathy with the occasion and to testify to the universal sense of loss which the community had met.

The medical profession is always enriched by every good member in it. Dr. Wheeler had a large practice which extended to the surrounding country widely. It was the general work for the most part of the family physician and the personal counsellor which in a good man go together. Doubtless there are many grieving not more for the loss of expert medical skill than for the cheering presence and hopeful words as well as for helpful advice of a trusted friend.

To his associates in the profession he was always an important man. Not that he filled official positions although some came to him as a matter of course, but he was the man of his region who was looked for to guide opinion and give counsel in the polity of the profession. Not all of us are equally wise, and only here and there is one who sees

logically, apprehends the public sentiment clearly and knows the best course in varied exigencies that we meet. To be sincere, conscientious and concerned are essential qualities to go with wisdom and intuition, and I estimate these as elements of his nature. There have been no forlorn hopes to lead and if there had been in a righteous cause he would have undoubtedly been a leader; but in the constantly occurring concerns of professional life he was looked for and found. He was interested in the work of his county medical society as every man should be and held the offices in it that came to him. In the State Society one of his best services was rendered in holding the presidency in the two inaugural years of the Third District Branch Society and setting this new organization well on its way. He has this current year been vice-president of the State Society.

He was well informed in his profession and has been a considerable contributor to current medical literature. He was a man of cultivated tastes, fond of literature and study, with the gifts of a certain grace and humor characteristically his own. He wrote with facility and a remarkable felicity; in force and grace of diction he was to be envied. An illustration of this is found in a beautiful tribute and appreciation which he wrote, after his passing away, for that rare souled man, his friend and neighbor, Dr. Peter V. S. Pruyn, of Kinderhook, whom he had the heart to understand, living there near him in the edge of the beautiful Berkshire hills.

We think kindly thoughts of our friends as they pass out of the light of common day with a completed record, but as one of the spokesmen for Dr. Wheeler, of his many friends, I think I have not gone beyond the facts in this brief estimate. None of us spreads a perfect picture, unflawed, on the canvas that by day's lives we bring to final completion. But our recollections of him will be of a helpful, earnest, right intentioned, companionable, fine-hearted man.

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## Benjamin Rush Holcomb, M. D.

The death of Dr. Holcomb occurred at his home in Whitehall, N. Y., December 31, 1908. He had been confined to the bed a short time and his death came suddenly as the result of dilatation of the heart. He had been a remarkably able-bodied man up to about seven years ago when he fell on the steps leading to the Rickard residence in Saratoga. He then seriously fractured the bones of one leg and by overtaxing the other limb, it became nearly useless, leaving him a helpless cripple. His decline awakened the sympathy and regret of people of Whitehall and vicinity, and, now that he is no more, tender memories are retained of him and the days when his medical skill was held in high appreciation.

Dr. Holcomb was a native of Westport, and was sixty-eight years of age. He graduated from the Albany Medical College in 1861 and served a year in the hospital under Dr. March. From 1862 to 1864 he was in the government service as a surgeon in the Civil War. He had several narrow escapes during engagements when the bombs were bursting near the surgeon's tent. Following the war he went to Whitehall where he

established a very extensive practice, first being associated for some years with the late Dr. A. J. Long. Dr. Holcomb was skillful in administering to the afflicted. He was active and covered a wide territory in his practice. There was something in his personality that made him the friend of all. He was affable and responsive and very kind-hearted. There was scarcely a home in town or in his locality that he did not visit in his younger days before overtaken by the misfortune from which recovery was impossible.

Dr. Holcomb was twice married. His first wife was Miss Helen Davis, a daughter of the late Emerson E. Davis, who was one of Whitehall's most prominent and esteemed ladies. Two children by the first wife survive. They are George, of Philadelphia and Marion (Mrs. George Bergengren), of Harrisburg. In November, 1899, Dr. Holcomb married Miss Elizabeth Spencer, the younger daughter of Judge and Mrs. James Spencer, who survives with a daughter, Jane. A brother, Daniel Holcomb, also survives.

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## Hamilton M. Weedon, M. D.

Dr. Hamilton Moore Weedon, of Eufaula, Florida, died at his home on September 10, 1908. Dr. Weedon was born in Tallahassee May 15, 1834, and moved with his parents, when a child, to St. Augustine, and later, to Key West. He graduated from the Albany Medical College in 1855, and after graduating went to Key West and the Dry Tortugas to recover his health. He then returned to Albany and served as interne in the Albany Hospital, after which he established himself in Key West and assumed the post of surgeon in the United States Marine Hospital Service. He also engaged in private practice. He served during the Civil War as a surgeon. He was first attached to the 4th Florida regiment, and later appointed to the staffs of Generals John C. Breckenridge and William B. Bate as division surgeon. Shortly before the close of the war he was ordered to Eufaula in charge of hospitals. He was paroled at Macon, Georgia, and returned to Eufaula. In 1866 he married Miss Mary E. Young. Mrs. Weedon died in 1891 and 1895 Dr. Weedon married Miss Bessie Fannin, of North Carolina. By the first marriage there were eight children, and by the second, one son.

Throughout his life, Dr. Weedon was a consistent member of the Methodist church and was conspicuous in its affairs. In every vocation of his long and useful life, he was successful, always ranking among the most prominent in his chosen profession as a surgeon and physician, and a business man whose diligence and strict integrity earned for him a reputation in the commercial world.

For two years he was a member of the City Council of Eufaula and also served as a Commissioner of Barbour County.

# Current Medical Literature

## REVIEWS AND NOTICES OF BOOKS

*Surgery: Its Principles and Practice.* In five volumes. By sixty-six eminent surgeons. Edited by W. W. Keen, M. D., LL. D., Hon. F. R. C. S., Eng. and Edin., Emeritus Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia. *Volume III.* Octavo of 1132 pages, with 562 text-illustrations and ten colored plates. Philadelphia and London. W. B. Saunders Company, 1908. Per volume: Cloth, $7 net; half morocco, $8 net.

The third volume of this system of surgery maintains the high standard set by the two preceding volumes and leaves but little to be desired in the accuracy and thoroughness with which the different subjects are treated.

The volume contains 1095 pages, with 562 illustrations and ten colored plates, and is sublivided into seventeen chapters.

The first chapter, by Cushing, is the most elaborate and exhaustive one in the work and is devoted to the surgery of the head. In it are collected all the essential facts connected with this important subject. Of course, the surgery of the brain is the one most important feature of the chapter and no one is more competent to present it than Cushing.

Diseases of the thyroid gland are most admirably discussed by Albert Kocher, the wonderful clinic in those diseases at Bern furnishing the basis for this treatise.

The surgery of the neck, the nose and accessory sinuses, and larynx and trachea, is described in appropriate chapters, and while not presented in the detail of the specialist, nevertheless they contain all the essential features.

An especially satisfactory chapter is that on the surgery of the breast, by Finney. It is complete, concise and exhaustive, and no better presentation of this subject has ever been written.

Surgery of the mouth, teeth, jaws and tongue, while perhaps of not as great interest as some of the other chapters, are none the less important and valuable. The technic of abdominal surgery, the surgery of the abdominal wall, the surgery of the peritoneum and retroperitoneal space form three chapters, all written by Munro and especially well done.

Surgery of the esophagus is written by Gottstein and in this all the newer methods of examination and operation are attractively presented.

Mayo Robson has written the chapter on surgery of the stomach and has contributed one of the best chapters in the volume.

The Mayos have written the surgery of the liver, gall, bladder and biliary ducts and none have had a wider experience in this department of surgery or are better qualified to make authoritative statements.

The closing chapters, on the surgery of the pancreas and the surgery of the spleen, are by Moynihan and present all that is of scientific or practical value in these fields.

As will readily be seen, this volume contains the writings of an unusual number of brilliant authors and the surgery presented is in every detail up to date, unlike in this respect so much that is presented in many works on surgical subjects. A. W. E.

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*General Surgery.* By EHRICH LEXER, M. D. Professor of Surgery, University of Königsberg. American Edition. Edited by ARTHUR DEAN BEVAN, M. D., Professor of Surgery, Rush Medical College. An authorized translation of the Second German Edition by DEAN LEWIS, M. D., Assistant Professor of Surgery, Rush Medical College, 1908. D. Appleton & Company, New York and London.

To those familiar with the work of Professor Lexer this English translation will be received with especial favor. The work is a presentation of the scientific principles upon which the practice of modern surgery is based. We know of no work which presents the present status of this phase of surgery in so thorough and complete a way as this volume of 1041 pages. It embodies not only a translation of the second edition of Lexer's work but an excellent chapter on Blastomycosis written by Dr. Oliver Ormsby, a chapter on blood examinations in surgery, and a consideration of the subject of opsonins and the Wright vaccination treatment as well as an abstract of Crile's recent work on the direct transfusion of blood. Most of the illustrations of the German edition have been retained and a number of original ones added. The chapters on infection and immunity and their application to surgery are alone worth the price of the volume. The important surgical diseases including infections and tumors are considered in a most admirable way.

This work, presenting as it does in a thorough and complete way the underlying principles of modern surgery, should be alike valuable to the student and surgeon. G. E. B.

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*Applied Surgical Anatomy, Regionally Presented.* For the use of Students and Practitioners of Medicine. By GEORGE WOOLSEY, A. B., M. D., Professor of Anatomy and Clinical Surgery in Cornell University Medical College, New York. New (second) edition, enlarged and thoroughly revised. In one very handsome octavo volume of 601 pages, with 200 illustrations in black and colors. Cloth, $4.50, net. Lea & Febiger, Philadelphia and New York, 1908.

Considering the number of excellent works on applied anatomy that have appeared during the last two years, it is a fair presumption of the superiority of anyone that a second edition has been necessary. This volume has been enlarged by about eighty pages and its illustrations increased by seventy-five engravings. The author presents in 600 pages a great amount of valuable information. The chapters on the head, neck and face and on the spinal cord deserve especial praise. Both surgeons and students should find this a useful book. G. E. B.

*Genito-Urinary Diseases and Syphilis.* By EDGAR G. BALLENGER, M. D., Lecturer on Genito-Urinary Diseases, Syphilis and Urinalysis, Atlanta School of Medicine; Editor Journal-Record of Medicine; Genito-Urinary Surgeon to Presbyterian Hospital, Atlanta, Ga., with 86 illustrations, 276 pages. Price, $3.00, carrying charges prepaid. E. W. Allen & Co., Publishers, Atlanta, Georgia.

In this small volume of 276 pages the author attempts to cover the subjects of genito-urinary diseases and syphilis. The various subjects are considered in a meagre and unsatisfactory way; but little attention being paid to the pathology and diagnosis. The illustrations are so poorly executed that many of them are of no practical value. Acute and chronic Bright's disease, which the author evidently considers a genito-urinary affection, is disposed of in twelve pages. G. E. B.

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*The Cure of Rupture by Paraffin Injections.* By CHARLES C. MILLER, M. D. Comprising a Description of a Method of Treatment Destined to Occupy an Important Place as a Cure for Rupture Owing to the Extreme Simplicity of the Technic and its Advantages from an Economic Standpoint. Published by the Author, 70 State street, Chicago. Prepaid, $1.

The author of this small volume apparently has no conception of the requirements necessary for the cure of hernia for he states that "in hernia cases there is invariably a state of the parts which will be benefitted by the throwing out of connective tissue in the neighborhood of the deficiency which gives passage to the hernial contents." The fallacy of this statement is well known. The "injection" treatment of hernia whether it aims at a cure through the production of connective tissue adhesions or by the introduction of foreign substances can never succeed as has been so often proved. This book savors of quackery and should have no place in medical literature. G. E. B.

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*Nephritis.* A Manual of the Disease Commonly Called Nephritis or Bright's Disease and of Allied Disorders of the Kidneys. By SEELYE W. LITTLE, M. D., of Rochester, N. Y. 12mo. cloth, price, $1.25 net (postage 8 cents). The Grafton Press, Publishers, 70 Fifth Avenue, New York.

This little book is a pleasure to read, as much for the good sense it contains, as for its novelty. It is a distinctly philosophical treatise upon this bane of the ordinary practitioner. Probably few will agree with the author that nephritis is a step in the evolution of the human race, a method instituted by nature to eliminate the unfit, but many will agree with him that it is a product of the environment of civilized man, certainly if his train of thought is carried through to the end.

"The book" (to quote from the preface) "is an attempt at a rational

comprehensive consideration of kidney diseases, especially of those diseases grouped together under the indefinite terms "Nephritis" and "Bright's Disease." It is a book for the general practitioner rather than for the medical student because a large amount of elementary medical knowledge is taken for granted. Some of the positions taken may seem revolutionary but they are well supported by recent research (especially in the line of physiological chemistry), by experimental studies in nutrition and by determination of food values."

The subject is considered in a broad manner, presenting first the general principles causing the various pathological processes met with, next the philosophy of these processes and the symptoms depending upon them, and then, in the light of what has been stated in the early chapters, a plan of treatment is suggested which will carry out the ideas brought forward in the discussion of the etiology and pathology.

Tables of dietaries and the food values of the usual articles of diet are given, with their nitrogen and proteid content, and a few illustrative cases.

The author's logic is good and we believe his premises are well taken. Were more patients with nephritis rationally treated by his method, we believe the results of the therapeutics of nephritis would be many times improved.

We heartily recommend the book to the careful perusal and consideration not only of the profession, but of senior medical students. Its 140 pages contain much of great value. C K. W., JR.

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*A Treatise on the Principles and Practice of Gynecology.* By E. C. DUDLEY, A. M., M. D., Professor of Gynecology in the Northwestern University Medical School, Chicago. Fifth edition, thoroughly revised. Octavo, 806 pages, with 431 illustrations ,of which 75 are in colors, and 20 full-page colored plates. Cloth, $5.00 net; leather, $6.00 net; half-morocco, $6.50. Lea & Febiger, Publishers, Philadelphia and New York, 1908.

The writer states in the preface to this, the fifth edition of his work, that, as in the previous editions, he has divided the subjects, not in the usual manner of grouping in each part all the divers diseases of some special organ, but so far as practicable he has arranged them according to their pathological and etiological sequence.

He has thoroughly revised the text and has included the recent advances in gynecology and has so condensed and rewritten the book that the new matter has been added without materially enlarging the volume. The following chapters have been subjected to special changes: Treatment of Salpingitis, Ovaritis and Pelvic Peritonitis; Treatment of Myoma Uteri; Treatment of Carcinoma Uteri; Treatment of Descent of Uterus, and Treatment of Retroversion and Retroflexion. Two new chapters have been added to the book, one an introductory chapter on the Defense of Gynecology as a specialty and the other on Incontinence of Urine in Women.

To those who are familiar with the previous editions of the work, a further review of the present one is not necessary. To those who are not familiar with this book, the following excellent features may be mentioned:

1. The treatment of the subject by considering general pathological processes as traumatisms, infections, tumors, etc., under these heads and not as special diseases of each organ, thus presenting a clearer picture of these pathological processes and their natural course.

2. The special attention to plastic work and minor gynecological operations—a department of gynecology to which the author has made many valuable contributions and one which is often slighted in works on the subject.

3. As the fifth edition it represents not only a thorough revision of previous ones but also includes the most recent advances in that subject.

4. In this work the author has described the methods of diagnosis and treatment which in his experience he has proved most valuable.

To the student and practitioner, for whom this book is written, it should prove, as it has in the past, one of the most valuable treatises on the principles and practice of gynecology. J. A. S.

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*International Clinics.* A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Treatment, Medicine, Surgery, Neurology, Pediatrics, Obstetrics, Gynecology, etc. By leading members of the medical profession throughout the world. Edited by W. T. Longcope, M. D., Philadelphia, Pa. Volume II. Eighteenth Series, 1908. Philadelphia and London, J. B. Lippincott Co.

Among the many valuable contributions to medical literature which this volume contains we would mention three of special interest.

The Treatment of Scarlet Fever, including prophylactic measures necessary to prevent complications, by Louis Fischer outlines the treatment pursued at the Riverside and Willard Parker Hospitals in New York, and contains several useful prophylactic suggestions.

Two Years' Experience of Treatment by the Inoculation of Bacterial Vaccines, by Edward Turton, Hull, England. A most illuminating article dealing principally with the vaccine treatment in Tuberculosis and also mentioning his experiences in other infectious diseases with similar agents.

The Clinical Manifestations of Uterine Cancer; John A. Sampson, Albany, N. Y. A masterly discourse on this subject of such vital import to patient, physician and surgeon. He emphasizes three facts which should be universally recognized, namely:

1. Cancer is a local process in its incipiency.

2. The process is rapid and the time for successful operative measures may be brief.

3. Prognosis if favorable early surgical intervention is obtained.

In summing up Dr. Sampson says, "We should realize that the classical symptoms of uterine cancer * * * is bleeding. Whether slight or profuse, constant or inconstant, and that every case of uterine bleeding must be considered as a possible one of cancer until proved otherwise."

H. D. C.

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*Nervous and Mental Diseases. For Students and Practitioners.* By CHARLES S. POTTS, M. D., Professor of Neurology in the Medico-Chirurgical College of Philadelphia. New (second) edition, thoroughly revised and greatly enlarged. In one 12mo volume of 570 pages, with 133 engravings and 9 full-page plates. Price, cloth, $2.50 net. Lea & Febiger, Publishers, Philadelphia and New York.

This is a handy, compact, fully illustrated and nicely gotten up volume and as a text-book it has many commendable features. The major portion of the book is devoted to neurology and the author has well succeeded in treating the subject matter in a clear, concise yet sufficiently comprehensive manner. All the important facts and the most recent teachings relating to nervous diseases are here incorporated, and where more detailed information has seemed necessary reference is made to authoritative sources. Worthy of special notice are the chapters dealing with symptomatic disorders such as headache, vertigo and paresthesia, wherein the occurrence, significance and the treatment of these symptoms are collectively discussed. Cerebral and spinal localization have received full consideration and in text as well as illustration they deserve the highest praise.

In treating the mental diseases the author has adopted the "generally accepted" Kraepelin's classification. This smaller section of the book, however, falls below the high standard maintained in the major portion of the volume. On reading the chapters on Dementia Precox, Manic-depressive Insanity, even Delirium Tremens, or Acute Hallucinosis we fail to find the cardinal and the most essential features of each psychosis clearly pointed out.

But as a text-book on nervous diseases we have no hesitancy in recommending it as an excellent, compact and authoritative work.

N. A. PASHAYAN.

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*Practice of Medicine for Nurses.* By GEORGE HOWARD HOXIE, M. D., Professor of Internal Medicine, University of Kansas. With a chapter on the Technic of Nursing, by PEARL L. LAPTAD, Principal of the Training School for Nurses, University of Kansas, 12mo of 248 pages, illustrated. Philadelphia and London. W. B. Saunders Company, 1908. Cloth, $1.50 net.

The author of this book has well succeeded in his attempt to write a suitable text-book on medicine for nurses' use. The introductory chapters deal with the etiology and the nature of diseases in general, the various diagnostic means and the principles of treatment. Beginning

with typhoid fever all the important infectious diseases, constitutional and visceral disorders, including those of the blood and the nervous system, eye and ear are discussed. It ends with some useful suggestions on surgical nursing and the care of the sick-room. The book is written in a clear style, the binding and the illustrations are well executed.

N. A. P.

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*A Reference Handbook of Obstetric Nursing.* By W. Reynolds Wilson, M. D., Visiting Physician to the Philadelphia Lying-in Charity; Member of the American Pediatric Society. 32mo of 258 pages, illustrated. Philadelphia and London. W. B. Saunders Company, 1907. Flexible leather, $1.25 net.

This is an attractive little volume and admirably fulfills its mission as a reference handbook for obstetric nursing. In simple and lucid style the author acquaints the nurse with the physiology of pregnancy, its course and signs; the onset, progress of labor and the puerperium with the most important pathologic states and emergencies that may arise during any of the periods. But most of the work consists of explicit instructions as to the duties devolving upon the nurse in taking care of the mother and the child. The illustrations are plentiful and reflect credit to the publishers.

N. A. P.

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## OPHTHALMOLOGY

### Edited by Charles M. Culver, M. D.

*The Treatment of Trachoma by Concentrated Light, Following Finsen's Method. (Bemerkungen ueber die Behandlung des Trachoms mit konzentriertem Lichte ad modum Finsen.)*

K. K. K. Lundsgaard. *Klinische Monatsblaetter fuer Augenheilkunde, June,* 1908.

The author, a practitioner in Copenhagen, says by way of introduction that he has no hope or expectation of entering into the fundamental process, of treatment by light application, in the course of this brief communication.

About five years ago, he began to concern himself with the treatment, according to Finsen's method, of conjunctival disorders, lupus of the conjunctiva being the first. The course of his work was as follows:

In a local periodical he published in 1905 a review of the pathogenesis, the appearance and the mode of treatment theretofore used, in cases of conjunctival tuberculosis and showed that it was possible, without endangering the integrity of the eyeball itself, to treat the tarsal conjunctiva by concentration of light and that this form of treatment constituted an excellent therapy for lupus conjunctivæ, inasmuch as all of the cases that had been treated in that way had been healed. The technique consisted in a simple eversion of the thickened eyelids so that an ordinary pressure

glass could be employed. Even at that time, the author claimed that this technique could be used only under peculiar circumstances, wherefore experiments were made with the clamp pressure-glass, which proved not to be specially practical. He then mentioned the possibility of using a prismatic pressure glass in the conjunctival sac, of the treatment of the inner side of the eyelid without its eversion being required and finally touched upon the new enterprise of the treatment of trachoma by that general method.

In a communication read before the Copenhagen Medical Society in November, 1906, he exhibited a prismatic pressure-glass, by means of which he had succeeded in treating conjunctival disorders, and discussed two cases of extensive, primary, conjunctival tuberculosis which had been healed by this kind of treatment.

Of the task originally undertaken, there remained then only the treatment, by light application, of trachoma and, inasmuch as the microbe of this malady has not yet been differentiated, the first question became "How do the trachoma cells behave when attacked by concentrated light?" In view of the fact that in Denmark there are only few cases of this very bothersome malady the author had not had as much experience with it as he could wish, and in view of that fact, he felt himself in duty compelled to seek a further acquaintance with the disorder, especially as his slight experience had been attended with an astonishing degree of success and the malady is a very serious one, concerning which the prognosis is always necessarily doubtful and that in certain lands the extent of the disorder is colossal.

His first experiments were made with somewhat atypic cases, or even in chronic cases in which the cicatricial stage had already been entered upon. He undertook the treatment partially in the ways that had formerly been employed and partly by the use of Groenholm's eye-key (*Augenschluessel*), an excellent instrument for the eversion of the eyelid, which, however, has the disadvantage of being susceptible of use only when the patient has well developed eye-lashes. This apparatus was used wherever it was feasible, the eversion method being preferable to the treatment with a prism, in view of the fact that the prism does not let the light fall perpendicularly upon the mucous membrane.

The investigation made in this case seems to prove that trachoma cells disappear with remarkable rapidity after illumination with the Finsen lamp. The author nevertheless strongly desired to get a fresh case for treatment in order to be able to prove how the trachoma cells were affected by concentrated light. The benevolence of Dr. Groenholm rendered it possible to undertake the treatment of such a patient. He was an 18 year old instrument-maker's-apprentice who had noticed in the beginning of November, 1907, a secretion, photophobia and annoying sensitiveness in the right eye. He arrived in Copenhagen the sixth of December, 1907, and both lids of the right eye were thickened with cells of variable size, some no larger than hemp seeds. The eye was somewhat injected. Cornea was clear and no scars discoverable. The left eye was normal. The lower eyelid was treated as follows: Next day, treated four times, fifteen minutes at a time, with a prism. In order to treat

the entire inner surface of the eyelid it was necessary to use the prism four times. Two days later the same treatment was employed four times, ten minutes at a time. Five days later, a single session of fifteen minutes occurred when Groenholm's key was used. A fortnight later there was a single use of the prism, the duration of the session being thirty-five minutes. A fortnight later, the prism-treatment was applied four times and used fifteen minutes at each session. Nineteen days later Groenholm's key was used for fifteen minutes.

The upper eyelid was treated as follows: Twelve days after the time of his first visit, this lid was treated twice, fifteen minutes at a time. Eighteen days later it was treated with a prism for fifteen minutes, as occurred likewise two days still later. Four days afterwards this lower lid was treated by Groenholm's key twice, each session lasting fifteen minutes. After an interval of twelve days it was treated thrice by the prism, a quarter of an hour at each session. Nine days later, twice, fifteen minutes at a time, by Groenholm's key. No other treatment than that by light was used. The reaction was as usual. After an incubation period of from twelve to twenty-four hours there was swelling and reddening of the mucous membrane. This membrane was generally covered by a thin pseudo-membrane, the secretion was muco-serous, seldom with purulent appearance and the inflammation had ceased in the course of a week.

In the first few days of this treatment the size and appearance of the trachoma-cells seemed unchanged, but on the third or fourth day they began to diminish.

As regards the patient, after three applications of the treatment to the under and a few to the upper lid it was noticeable that the inner surface of the under lid was practically smooth and normal and that the trachoma-cells on the upper lid had notably diminished. Nevertheless, the treatment, as above noted, was continued for a considerable time in order that the good effect might be assured as fully as possible. After the conclusion of the treatment and for two months thereafter, in fact as long as it was possible to keep the patient under observation, the inner surfaces of both eyelids were quite smooth, the mucous membrane perhaps slightly swollen, but otherwise normal, while the secretion, the injection and the subjective symptoms had disappeared.

At about the same time, a Russian on his way to America, was compelled, on account of an ocular affection, to stay a while in Copenhagen. There was some cicatrization. There were permanent trachoma signs in both the upper eyelids, but only in the upper lids and in the lower part of the fold of the conjunctiva and these were made to disappear by a few sessions of fifteen minutes duration each, with Groenholm's key.

The author felt great need for more plentiful clinical material and he experienced great difficulty, in view of the fact that he had not had plentiful material, but needed to use for further experiments cases of conjunctivitis, with plentiful cells in the mucous membrane but which did not show the symptoms that made it possible to be sure that it was cases of trachoma with which he was dealing and not merely cases of follicular conjunctivitis. The cells of the latter disorder are both macroscopically and microscopically resemblant with those of trachoma and such cases

constitute indeed valuable material for demonstration of the astonishing effect which the treatment by light concentration has on adenoid tissue. The author describes his experience with such cases of follicular conjunctivitis but says he will abstain from the minutiæ of these experiments because they must be continued. In all his investigation he feels the need for further microscopic examination of the changes which have taken place in the trachoma cells. He declares that his material has been too limited to enable him to give a final decision upon the possibility of healing trachoma by this method. He thinks it possible that whatever the benefit superficially has been, the infiltration in the deeper layers of the mucous membrane may present further difficulty and the length of the period of observation was not great enough to enable him to feel safe against the recurrence of the disorder.

The article presents the following conclusions:

1. Circumscribed aggregations of adenoid tissue in the conjunctiva disappear as the result of very short treatment by concentrated light and this treatment needs to be of less duration than is the case when it is applied to any other pathological tissue.

2. At least certain forms of trachoma appear susceptible of cure by this method of treatment.

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*Double Optic Neuritis Following Varicella. (Nevrite Optique Double Suite de Varicelle.)*

P. Chavernac. *Annales d'Oculistique, July,* 1908.

The question of optic neuritides was ably discussed by Antonelli in a remarkable report to the International Congress of Medicine at Madrid, which was reported in the *Archives d'ophtalmologie,* 1903.

While there were therein reported seven cases of optic neuritis consequent on varicella, one case following varioloid, the single case attributable to chicken-pox was that reported by Jonathan Hutchinson, Jr., published in the issue for September, 1906, of the *London Ophthalmic Review.* The author reports two other similar cases. He says that the ophthalmic literature at his disposal furnishes nothing concerning optic neuritis due to chicken-pox. The extreme rarity of this complication leads the author to report the second case of it.

In November, 1905, a boy, eleven years old, was referred to him because of a considerable diminution of the visual acuity of either eye. Ten months earlier the patient had been abed a few days with chicken-pox, then became convalescent without the appearance of any complication of the malady. From this time on he became convinced that his ability to see had decreased. A fortnight later he could no longer read, and four months later was unable to count fingers at the distance of a meter. Several surgeons were consulted, and there was entire unanimity of their diagnosis of optic nerve affection. The prognosis was not at all favorable. The patient was subjected to mercurial treatment. The patient's family and personal history contained nothing of value to the surgeon at the time

when the case came under Chavernac's attention. He was generally anæmic. Ophthalmascopic examination showed each optic disc to be, as is usual in such cases, somewhat swollen, indistinctness of edges and several minute hemorrhages upon its surface; there was a central scotoma for red and green, and the visual fields were contracted by twenty degrees in each diameter. The author used subconjunctival injections of hetol (cinnimate of soda), in solution of one per cent., in doses of five or six drops at each injection, with intervals of two or three days. After fifteen such injections, the boy's vision was raised from four per cent. in each eye to ten in the right and sixty in the left. The central scotomata disappeared, and the visual fields meantime became restricted by only ten degrees instead of the former twenty. After several months' discontinuance of this treatment, it was resumed and the acuteness of vision became still better; the right forty per cent. and the left ninety. Two years later this improvement was found to have been permanent.

In conclusion, the author deprecates the treatment of such cases of toxic origin by mercury, recommending the use of hetol in its stead and lays much stress on the fact that good results are possible even in cases in which neuritis is of several months' duration.

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*Non-diphtheric Pseudo-membranous Ophthalmia Cured by Antidiphtheritic serum. (Ophtalmies purulentes et pseudo-membraneuses non-diphthériques gueries par le serum antidiphtérique.)*

C. Fromaget. *Annales d'ocultistique, September,* 1907.

The brilliant results achieved by antidiphtheritic serum-therapy, in severe cases of pneumococcus keratitis, have led Fromaget to resort to this protection-method in combating purulent ophthalmias which might be due to the same pathogenic cause. Purulent pneumococcus ophthalmia may assume very grave forms, as Coppez has pointed out and as the author himself has observed. Moreover, it is impossible to formulate a special clinical type for each agent and each microbe gives rise, according to circumstances, to benign or severe forms of disorder. Fromaget has lately observed two very instructive cases of pseudo-membranous, purulent conjunctivitis, due to the pneumo-coccus, which were cured so remarkably by antidiphtheritic serum that he regards their histories as worthy of publication.

One of the patients was a child three years old, brought to his service in the Pasteur clinic last June, because of a most intense, double, purulent ophthalmia. The upper lids were enormously swollen and pus flowed abundantly from the palpeberal fissure. When the lids were everted, the conjunctiva was found to be covered with false membrane. The cornea was still free from this affection. Ordinary treatment, by bathing in solutions of permanganate of potassium and repeated instillations of argyrol, caused no improvement and, fearing that the affection was diphtheritic in character, the author injected ten cubic centimeters of antidiphtheric serum. In twenty-two hours the child opened both eyes and the false

membranes had about half disappeared. Forty-eight hours after the instillation the cure was complete. Not only had the false membranes disappeared but the suppuration had ceased and the patient thereafter used only boiled water with which to wash the eyes. From that time on there was no further need for treatment. The author confesses that, in view of this extremely remarkable result, he believed that it was a question of diphtheritic conjunctivitis and he was greatly astonished when examination, of the pus and cultures, made by Professor Ferré, proved that the case had been one of conjunctivitis due to pneumo-cocci.

Considering the results obtained in cases of keratitis from the same cause, he was led to believe that in this antidiphtheritic serum was a therapethic agent of the first order, to which recourse might well be had in cases of purulent ophthalmia of whatever origin. A still more severe case justified this opinion. A little more than a month after the first case, his friend and colleague, Dr. Quintrie, induced him to visit professionally a relative of the latter, a child, born three days earlier, who was the victim of severe purulent ophthalmia, which was present in both eyes and had just made its appearance the third day. The eyelids were notably swollen, infiltrated and a lemon yellow pus was flowing in abundance. When the eyelids were separated, they were found to be lined with a very adherent, grayish, false membrane. This pseudo-membrane, interstitial in form, caused the author to make a very unfavorable prognosis, although the cornea was still intact. Being far from examination centres and unable to know the pathogenic agent causative of the affection, he advised the child's physician to inject, as soon as possible, five cubic centimeters of antidiphtheritic serum. The injection was made the following day at 11 a. m., but, meantime, during the night, an alarming complication had ensued. Both cornea had become invaded in all of their lower halves, and the physician, justly alarmed, sent the patient to Bordeaux, where Dr. Fromaget could attend it directly. The inflammatory phenomena underwent an almost immediate arrest after the injection. When the author saw the patient, twenty-four hours later, everything was changed. The surprised family had seen the swelling diminish so rapidly that the diminution seemed to be almost visible. The false membrane was ruptured in great part and the suppuration was almost *nil.* Forty-eight hours from the time of the injection, the œdema had absolutely disappeared. The false membranes no longer existed and the corneæ were free from infiltration. The ulcer was superficial and very clear-cut, as if made with a punch. From this time, the purulent conjunctivitis was cured and the sole treatment consisted in caring for the keratitis with baths of weak solutions of permanganate and applications of yellow ointment. Thanks to the entire absence of all conjunctival suppuration, the corneal ulcer, which had been enormous, since it occupied half of the cornea, healed rapidly, leaving very slight leucomata and the child left the infirmary less than three weeks after its admittance.

The bacteriologic examination, made during the treatment, showed that it was a question of purulent ophthalmia due to the pneumo-coccus and staphylococcus.

Among the author's conclusions are these: This serum possesses other

virtues than its specific properties, and it is a question here of what Darier calls "non-specific sero-therapy."

Some of the other conclusions savor so much of conjecture as to be scarcely worthy of abstract. Apart from these, Fromaget says that the use of the serum in question is inoffensive, and that new-born children bear, without any undesirable consequences, doses of five cubic centimeters. He thinks this ought to be used in every similar case and without waiting for a bacteriological examination.

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*A Case of Transplantation of the Cornea with Preservation of Transparency. (Ueber einen Fall von Hornhauttransplantation mit erhaltener Transparenz.)*

O. Plange. *Klinische Monatsblaetter fuer Augenheilkunde, March,* 1908.

In September, 1906, a patient was brought to Plange with the history that, a quarter of an hour earlier some unslacked lime had been thrown into his right eye, which, because of an injury that the left eye had suffered during his childhood, had long been his only seeing eye. There were present abundant symptoms of the kind that are usual, in cases of similar accidents, most marked of which was a relatively large mass of lime so deeply burned into the conjunctiva, under the upper lid, that it was necessary to use a sharp curette in order to remove it. After careful cleansing, the eye was put under the influence of atropin and cocain and treated with baths of a ten per cent. solution of ammonia tartrate. From the outset the epithelium of the cornea was absent, having been destroyed by the lime. The cornea immediately opacified and infection took place, resulting in corneal perforation and prolapse of the iris, this being in the lower half of the cornea. Symblepharon and entropion were annoying complications. The right eye became totally blind. The wound of the left eye had been with a fork and had resulted in that eye's pthisis and amaurosis. The cornea of the left eye, however, although smaller, had kept a fair transparency.

Plange decided to attempt the transplantation of a part of the left cornea to the totally opaque right. As preparatory to the main operation, the symblepharon was freed and conjunctiva from the left eye used to make good that which was cut away from the right cornea, lest the symblepharon be renewed by leaving open the resultant gap in the conjunctiva. Plange preferred not to use Hippel's trephine because of the danger of cutting into the anterior chamber of the right eye. Indeed this was successfully avoided in each. Any disinfection of either eye that should tend to albumen-coagulation was carefully avoided. In April, 1907, the operation was done, the disinfection being secured by use of a bi-chlorid solution, 1:5,000 and the anesthesia by a 3 per cent. cocain solution, a sterile salt solution being dropped on the eye as the operation further proceeded.

The superficial, vascular layer of the cornea of the right eye, above the place of the perforation, was divided, by a cross-section, into four sectors, each of which was cleared from the underlying membrane and folded back. In this way the scar tissue was laid bare. With a curved scalpel a thin layer of this scar tissue was scraped away, by horizontal strokes, from the place of perforation to the upper limbus. Repeating this, the operator found that the opacity of the cornea diminished as the upper border was approached. A third trial showed a narrow area of transparency. He abstained from any more attempts of this kind, lest the inner chamber be thereby entered; until, having found that no aqueous humor appeared when he had made an almost tangential prick with a cataract knife, the fourth excision was performed. This was likewise successful and effected the desired result. The remaining layer of the cornea, although not entirely clear, was nearly enough transparent that the iris and pupil could be recognized through it. Having disinfected the left eye by much the same method as had been used in the case of the right, an oval piece of the cornea was cut out, using a Græfe knife, the puncture being at the temporal side, the counter-puncture at the nasal, the section being downward to within two millimeters of the limbus and a bridge being left at the lowest part, for the fixation of the piece that was later to be transplanted. Then the edge of the knife was turned upward and a similar section made, ending close to the upper limbus. The bridge was severed and the piece carried to the cornea of the right eye, being there fastened by four sutures.

The recovery was not uneventful but was attended by various undesirable incidents, among them being a smoky, cloudy appearance, for a considerable time, of the epithelium of the transplanted piece. Twelve days after the operation the bandage was replaced by a patch. The innermost layer of the right cornea, which had been left intact, then began to clear up and it was possible to test acuteness of vision. Fingers could be counted at from fifty to seventy-five centimeters. Three or four weeks later that eye became able to count fingers at from four to five meters.

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*Congenital Wordblindness.* (*Ueber kongenitale Wortblindheit.*)

A. Peters. *Muenchener medizinische Wochenschrift,* 26 *May.* 1908.

In 1896, Morgan reported in the *British Medical Journal* a case of congenital wordblindness. It was that of a 14 year-old boy, who was in all other respects normal but incapable of reading or spelling correctly. He could manage only monosyllables and read polysllables only with difficulty and incorrectly. Written or printed matter had no significance for him, although he could read figures perfectly. This difficulty, which cannot be ascribed to either a wound or an illness, was localized by Morgan in the Gyrus angularis. As was later shown by the

editor of the periodical, *The Ophthalmoscope,* Kerr had, five months earlier, written the Howard prize essay of the Royal Statistical Society concerning this same affection. About four years later, in *The Lancet,* Kerr reported three other cases of this kind. Hinshelwood, Nettleship, Stevenson, Thomas and Fisher, the Englishman among those who have reported similar cases, Bruner, Claiborne and Shapringer, the latter three Americans, have contributed more than 80 per cent. of the literature on this subject. Wernicke in 1903 published three cases of this kind hailing from Buenos Ayres. Hinselwood and Nettleship agree with Morgan that the affection results from a peculiar disturbance in development. Thomas and Fisher called attention to the fact that cases of wordblindness were likely to be found in members of the same family and Stevenson pointed out that the affection was somewhat hereditary in character, since he found six cases in three generations.

It is noteworthy that the case reported by Peters is the first that has been reported as occurring in Germany. The patient is a 12 year-old boy of healthy family among whose other members a like morbidity has never appeared. The boy is well developed for his age, although somewhat small, and appears generally intelligent. He was brought to Peters solely because of his backwardness in reading. There was no ground for the assumption that this backwardness was due to any eye defect, since nothing but a low grade astigmia was revealed by examination. The letters and Arabic figures were promptly read during the examination of visual acuity for distant objects. It was also found that Arabic numerals were easily read from a book, while even short words were hesitatingly read and many mistakes were made during the course of the reading. The patient could copy well from a book, although not very rapidly. If, however, a short sentence were dictated, almost every word of it was written incorrectly by him and two minutes after he had written such a sentence it was only with great difficulty and many errors that he could read what he had himself so lately written. Hence there is imperfect development of memory for written and printed word images but as to the ability to read musical notes, there were no data because the boy had had no instruction of this sort. In reading numbers a common mistake of the patient was to transpose the last of the figures, calling for instance, 87, 78. The boy could, however, mentally solve simple arithmetical problems readily, could sing a familiar tune fairly well, could recite a poem, could recount a scriptural story, could describe the town in which he lives with reference to its topographical relationship, fairly well, could draw a triangle or a square and in fact he was not lacking in intelligence, motility, sensibility, nor was he in any other way degenerate. The boy appeared very bashful but this was explained by the fact that his backwardness in reading had caused him to need to sit among much younger children in school and he had suffered a great deal of plaguing on that account.

Peters reports a second case concerning which he declares himself in doubt, because, although there is some appearance of wordblindness, there is also a mental deficiency to complicate the case and render difficult a diagnosis. This patient, a boy of eleven years, is distinctly microcephalic

and his family history is one of mental weakness on the maternal side. Because of having been often ill, this boy has never been to school but has had private instruction. Peters sought a solution with Schuchardt, a neurologist, who diagnosticated microcephalus with idiocy. The patient writes letters and figures fairly but cannot learn words readily, to write them, even when they are so short as the verb "*ist.*"

An interesting point in connection with the case is that the child's father says that although he himself got along pretty well in school, he could never readily read musical notes, his difficulty being not with the notes that were arranged in horizontal rows but he could never easily get chords on the piano because he could not read notes that were in the same vertical lines.

Peters calls attention to the fact that in all literature prior to this present report, only two cases had been reported from other countries than England and America, the two exceptions being one each from Holland and Buenos Ayres. He says that Claiborne holds that one reason for this is because the spelling of the English language gives very slight clews to its pronunciation. The author does not accept this explanation of it but mentions the assumption of Stevenson that phonetic spelling may be somewhat concerned, since, in one case of his, Latin words were more easily read than were English ones.

Concerning the etiology of wordblindness, the author expresses his agreement with Morgan's opinion that it is congenital but thinks the citations by Thomas and Fisher and, even more markedly, those of Stevenson, indicate that already in the primary stages of embryonic growth occurs a circumscribed defect in development. This assertion is strengthened by the fact that the hemianopsia, which is so frequently present in cases of wordblindness, was not found in these cases. If the twenty cases reported by Nettleship, the six of Hinselwood and the eight of Thomas should lead to the assumption that wordblindness is not a very rare affection, this would be verified by Thomas's assertion that, since the school physicians in London have been instructed to keep a somewhat special lookout for cases of wordblindness, there have been found in that metropolis about two thousand school children who were in some degree victims of this disorder.

It is likewise interesting to note that 75 per cent. of the cases were found among boys. No anatomical explanation has been discovered. Peters thinks that there is no justification for the explanation that wordblindness is a consequence of previous inflammation or degeneration. Wernicke reports two cases of wordblindness in which instruction had succeeded so well that one of the patients had become a lawyer and the other a lady of good social standing, who had not revealed her inability specially, except by her expressed regret that she was unable to read well at the time of her marriage.

The authors reported in this article agree with the writer of it that victims of wordblindness should not be referred to schools for the mentally deficient but should attend ordinary schools and likewise have somewhat special instruction at home.

*The Treatment of Superficial Pneumococcal Affections of the Globe by Means of Rabbit's Bile. (Note sur le traitement par le bile de lapin des affections superficielles du globe oculaire causées par le pneumocoque.)*

V. Morax. *Annales d'oculistique, November,* 1907.

Neufeld has pointed out the bacteriolytic properties of rabbit's bile with reference to the pneumococcus. If from two to three drops of rabbit's bile be added to a pneumococcus culture in bouillon which has been kept for twenty-four hours at a temperature of thirty-seven degrees centigrade, the culture clears rapidly and after a short time the bouillon can be shown to be free from any activity, whether the examination be made with the microscope, by culture or by inoculation. Neufeld seems to have been the first to point out the bacteriolytic power of bile from the rabbit. He likewise says that it is notably more active in this sense than is human bile or that of the dog, rat or goat. Nicolle and Adil Bey have further examined concerning the properties in question and have shown that they are due to the presence of biliary salts. These authors have arranged these salts in the order of their efficacy.

Among the most destructive diseases of the eye, corneal ulcer caused by pneumococcus is prominent and while the treatment of such ulcers is oftentimes successful when it consists of cauterization and other classical means, there is still a remnant of cases in which the physician may well be grateful for the addition of any effective therapeutic agency. Gabrielides is said by Morax to have been the first to make a clinical application of Neufeld's discovery, by using instillations of bile for the treatment of pneumococcal corneal ulcers. He has treated cases of hypopyon ulcer successfully, using rabbit's bile or that of the sheep. Morax followed the example of Gabrielides and brought about the cure of four similar cases in from a week to a fortnight, with complete transparency or very slight cloudiness of the cornea. A sheep's bile was gathered aseptically at the abattoir immediately after the slaughtering of the animal and by means of sterilized pipettes. In one final case iodiform, atropin and hot compresses were combined with the use of the bile.

On the occasion of the communication by Dr. Eperon to the French Society of Ophthalmology at its congress in 1907, concerning the use of a 20 per cent. solution of sulphat of zinc in treating corneal ulcers, Morax mentioned a treatment, with bile, of serpigenous ulcers, of which he had thus treated several cases successfully. The author reports four cases of corneal ulcer, three of which were serpigenous, at least two of the three due to pneumococcus and the third a hypopyon ulcer produced by the pyocyaneus; also a case of conjunctivitis due to pneumococcus, all five of the cases having been treated by the use of rabbit's bile. There was also a careful cleansing of the lids, conjunctival sac and the lacrymal passages. Iodiform ointment was applied as was also atropin, when this latter was indicated by spasms of the iris. The ulcer was slightly scraped in two of the cases. In the three cases due to the pneumococcus all were cured and the hospital treatment lasted 16, 21 and 29 days, respectively. One of the three cases needed three instillations of the bile, but in each

of the other two cases two instillations sufficed. Improvement was marked by the third day, in each case; the same kind of treatment applied to the corneal ulcer which was due to the bacillus pyocyaneus was quite ineffective. In the case of the pneumococcus conjunctivitis, nearly all of the pneumococci were banished from the secretion within twenty-four hours, by the instillation of a single drop of rabbit's bile into each eye.

The fact of the use of other remedial measures might seem to lessen the value of the testimony regarding the worth of rabbit's bile as a therapeutic agent but the author specially points out that this remedy is not stated by him to be a panacea, but merely a potent adjuvant.

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## PEDIATRICS

### Edited by Henry L. K. Shaw, M. D.

*Concerning a Frequent Hitherto Apparently Unrecognized Disease of Certain of the Bones of Children. (Ueber eine Haufige, bisher auscheinend unbekannte Erkrankung einzeiner kindlicher Knochen.)*

G. Fedor Haenisch. *Muenchener medizinische Woschenschrift, No.* 46, *November* 17, 1908.

Kohler of Wiesbaden, demonstrated at the Fourth X Ray Congress in Berlin, three cases of a disease of the skeleton which had apparently not been heretofore recognized.

The writer presents a case which he believes belongs to this group. Unfortunately the clinical findings have not been confirmed by operation or autopsy as yet. The writer's case was that of a child of five years of age, who was evidently poorly nourished in infancy and had had mild symptoms of rachitis. At the age of three years it sustained an injury to the back of the left foot and during the succeeding year, there were on several occasions a sudden swelling of the back of the left foot without especial pain or tenderness. There was a slight flat foot on both sides, for which supports were used. The radiograph which was made nearly two years after the injury and the onset of the trouble showed particularly the absence of the ossification center in the left navicular. The leg was put up in a brace with a support for the arch and hypermia employed. Radiographs made during the next eight months showed the gradual development of the ossification center and the presence of a fairly normal shadow of the navicular associated with a disappearance of all the symptoms.

In this case as in most of those of Kohler, the localization of the difficulty seemed to be in the navicular. In some of Kohler's cases there was flat foot while in others a well marked arch. The duration varied from two to three years or over without added complications and treatment consisted in the protection of the flat feet. The symptoms in all the cases were slightly characterized by an intermittent swelling in the region of the navicular, at times associated with a redness of the skin over this

region. There was no evidence of the existence of tuberculosis. At the time trauma occurred, the navicular was represented by a cartilaginous deposit, which the writer believed was injured by the trauma, resulting in an abnormal bone development. As growth advanced bone formation occurred and an approximation to the normal condition developed.

Dr. E. Fraenkel agreed with the writer's conclusion from the pathological standpoint. The writer's belief, therefore, is that this affection is due to a faulty development of the primary ossification center resulting from traumatism.

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*Orthostatic Albuminuria.* (*Die orthostatische Albuminurie.*)

JEHLE. *Jahrbuch für Kinderheilkunde, November,* 1908.

The author describes a new etiologic factor which explains the clinical appearance of this condition. He shows as a result of many experiments that albuminuria is constantly absent when the spines of such patients are kept perfectly straight or have only a slight kyphotic curve. When, however, the spine is changed into a position of slight lordosis, albumin will immediately appear in the urine. He claims that the cause of the albuminuria lies not in the "orthostatic" position of the body but is the result of any position of the body which produces a lordosis. The albuminuria, therefore, is not "orthostatic" but "lordotic."

Jehle had several children with this condition in whom albumin never appeared when the spine was held with a plaster cast so that no lordosis of the dorsal vertebrae was possible, but when the cast was removed and the lordotic position resumed the albumin would reappear.

The author had eighty-two normal children assume an artificial lordosis and in two-thirds of the cases he obtained albumin. In the remaining one-third he was unable to produce the lordosis. From this he argues that the lordosis is the causative factor of the albuminuria and that there are no pathological changes in the kidneys.

He was able in one instance to produce in five minutes a marked albuminuria by direct pressure on the inferior vena cava above the entrance of the renal veins. He claims the albuminuria is the result of the pressure of the spine, when in a lordotic position, producing a congestion of the renal veins.

The conclusions of the author are as follows:

Orthostatic albuminuria is the result of an abnormal position of the body which is the result of lordosis of the dorsal vertebrae. The cause of the lordosis is a laxness of the ligaments of the vertebrae and a weakness of the abdominal muscles which occurs during the period of most rapid growth. The albuminuria persists as long as an abnormal position of the body exists. This disappears generally when the rapid period of growth is over.

Orthostatic albuminuria in adults is due to the same cause.

*On the Existence of Hirschsprung's Disease. (Existe-t-il une Maladie de Hirschsprung?)*

GAUJOUX. *Archives de Medecine des Enfants, November,* 1908.

The condition known as Hirschsprung's Disease or megacolon congenital has not received the attention it deserves from the medical profession. Following the first description by Hirschsprung excellent papers have been written by Mya, Concetti and Duval. Much confusion has arisen from including cases of congenital constipation with secondary dilatation under this head. Hirschsprung's Disease is a true primary idiopathic dilatation of the colon and not the result of some obstruction to the intestinal contents. It is probably due to some anomaly of embryonal development.

The author quotes the views of Fenwick, Griffith, Treves and others who deny the embryonal origin of this dilatation and claim that the condition is the result of more or less prolonged constipation, in other words is a compensatory dilatation.

The symptoms are obstinate constipation, constant and well-marked dilatation of the colon since birth, vomiting and a progressive cachexia. Anatomically there is found a dilatation of a considerable portion of the large intestine with more or less well-defined hypertrophy of the walls. The muscular walls of the intestine become hypertrophied in the effort to expel the fecal contents which is analogous to the hypertrophy of the bladder when the prostate is enlarged.

The diagnostic feature is the absence of any constricting bands, atresia or any obstacle to the passage of the intestinal contents.

A condensed synopsis is given of forty-three reported cases of Hirschsprung's Disease in which the diagnosis was confirmed by autopsy and of nineteen cases in which no autopsy was made.

The author as a result of his studies believes in the existence of idiopathic congenital dilatation of the colon or Hirschsprung's Disease. Congenital dilatation of the stomach and congenital ectasie of the esophagus have been reported.

Hirschsprung's Disease is a rare anomaly and before a diagnosis is made all other factors which might produce such a condition must be excluded, such as chronic constipation, spasm of the sphincter ani muscles, too long and tortous sigmoid flexure or any obstacle to a regular evacuation of the bowels.

Medical treatment is of no avail and surgical intervention is indicated.

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## Original Communications

# THE CRIME, THE CRIMINAL AND THE POLICE.

*Read by invitation before the Massachusetts Medico-Legal Society, Boston, June 8, 1908.*

By CHARLES GREENE CUMSTON, M. D.,
*Boston, Mass.*

There is nothing new under the sun and crime repeats itself in every type throughout the history of the world. In this paper, which is not strictly of a medico-legal nature, I shall only make a few rambling remarks and relate some noted criminal cases, perhaps not generally known to this Society.

Although the detective services in the United States are not as good as might be wished, when compared with the great service of Scotland Yard in England, the really wonderful detective departments of Paris and Switzerland, and to some extent Berlin and Italy, still much advance has been made of recent years. Then, again, detective work in this country is done on a large scale by private concerns, the most noted of which is probably The Pinkerton Agency. Allan Pinkerton, the founder of this agency, began life as a cooper in a town called Dundee near Chicago, somewhere about 1847, and what started him in his career was the case of a counterfeit gold coiner, whom he finally ran down and captured. Pinkerton did this first piece of business as an amateur and afterwards succeeded well as a professional detective, but, as the story of his first capture is rather long, I will not further allude to it here.

Do not think for a minute that our modern detectives are any better versed than were their confrères of two hundred years ago, in the detection of criminals and crime. For example, we have the famous de Sartine who was police minister of

Paris in about 1770 and to give an idea of how well he was informed of the doings of criminals, I will relate the following anecdote. A certain great officer of state, wrote him from Vienna, asking that a noted Austrian robber who had taken refuge in Paris, might be arrested and handed over. De Sartine immediately replied that this was all a mistake, the man wanted was not in Paris, but actually in Vienna; he gave his exact address, the hours at which he went in and out of his house, and the disguises he usually assumed. The information was absolutely correct and led to the culprit's arrest.

Another famous chief of detectives in Paris was the well-known Vidocq. He was a former criminal himself, and employed criminals largely as his agents. He was well-known along in 1820. A good anecdote relative to his employment of former criminals is as follows. In selecting among candidates Vidocq sought the boldest and the most impudent. One day a man by name Jacquin, whom he did not know, offered himself and, in order to try him, Vidocq sent him to buy a couple of fowls in the market. The man presently brought back the fowls, likewise the ten francs Vidocq had given him to pay for them. He was asked how he had managed, which was quite simple. He had gone to the market carrying a heavy hod on his shoulder, and, when he had bargained for the fowl, he asked the market woman to put them on the top of the stones in the hod. While she obliged him, he picked her pocket of the ten francs with which he had paid her. Jacquin acted the entire affair before Vidocq, whom he treated just as he had the market woman, because, when he had finished, he had lifted Vidocq's gold watch and chain.

I would now like to relate the history of one Harry Benson, a noted criminal of recent times and of particular interest to me, because I attended him professionally while he was in Geneva carrying out the last crime that he was ever to accomplish on the continent. He came into special prominence in connection with the Goncourt frauds and the disloyalty of certain London detectives. He had a brief and strangely romantic career of crime for he was not much more than forty when it ended with his death, yet he had secured large sums by his ingenious frauds and had long lived a life of ease, respected and outwardly most respectable. He came of very good parentage; his father was a well-to-do merchant in Paris

and of undoubtedly good repute. His son was carefully educated, spoke several languages fluently, was a good musician, well read and had charming manners.

But, from his earliest days, young Benson's moral sense was perverted and he could not run straight. He belonged by nature to the criminal class such as described by Lombroso, and all his tastes ran towards foul play. He seems to have first made his appearance in Brussels between 1870 and 1871, where he was prominent among the French refugees at the time of the Franco-German War. He assumed the name and title of Comte de Montague, pretending to be the son of an old Bonapartist, General de Montague. He lived fashionably, had horses and carriages, a splendid apartment, gave many entertainments and was generally a very popular person of fashion, much liked on account of his pleasant and insinuating manners. Nothing is known as to the sources of his wealth at this time, but his first encounter with the law came of a nefarious attempt to add to them. One day Comte de Montague called at the Mansion House in London, and begged the Lord Mayor's charitable aid for the town of Châteaudun, which had suffered greatly from the war. The money raised, he at once proceeded to apply to his own needs, but his imposture was presently discovered and he paid a second visit to the Mansion House, this time as a prisoner. The affair ended in a sentence of one year's imprisonment, during which he set his cell on fire and burned himself badly. For a long time afterwards he was lame, to such an extent that he used crutches, a serious handicap which would have greatly impeded a less audacious criminal.

The more extensive operations in which Benson was engaged followed after he left prison. As his family would have nothing to do with him, and being obliged to earn his living, he advertised himself as seeking the place of secretary, giving his knowledge of several languages as part of his qualifications. This brought him into connection with a man who later on was to become his confederate in many of his schemes. One William Kurr engaged him and soon they came to an understanding, becoming associates on equal terms. Kurr had a very shady character and had several times been tried for his life. From clerk in a railway office he passed into the service of a West End money lender and then became

interested in turf speculations. The business of illegitimate betting attracted him as offering great opportunities of acquiring fortune, and he was the founder of several bogus offices, none of which prospered to any extent until Benson appeared upon the scene. From this time on, their operations were much bolder and far more successful. Benson's ready wit and inventive genius developed new lines of procedure and there is little doubt that quite early in the partnership he conceived the idea of suborning the police. Kurr, under the name of Gardner & Company, of Edinburgh, had come under suspicion and was being closely pursued by a detective, Meiklejohn, who had been chosen from among the Scotland Yard officers to act in the North for the Midland Railway. When the scent was hottest, Kurr, by Benson's advice, approached the above mentioned detective and bought him over. This was the first step in the great conspiracy which later involved other officers, who sacrificed their honor to the temptations offered by these rogues. Benson, being half Frenchman and intimately acquainted with French ways, saw a great opening for developing turf frauds in France. Accordingly, the firm went over to French soil and, with great skill and patience, elaborated an enormous scheme for entrapping the unwary. They first worked through the directories in order to obtain the names and addresses of likely victims and, when later they were brought to justice, some of these books were found in Benson's quarters with annotations and much marked. At the same time they made up an attractive circular, setting forth the extraordinary advantages of their betting system. These were sent out broadcast through the country, accompanied by a copy of a sporting paper specially prepared for this purpose. It was the only copy of the paper that ever appeared, although it was numbered 1,713. It had been printed for the purpose in Edinburgh and in every way was a complete journal, containing advertisements, leading articles, etc., several of which referred in a most complimentary tone to an imaginary Mr. Montgomery—Benson's alias in this fraud—and the excellence of his system of betting investment.

It was stated that this Mr. Hugh Montgomery, who had invented the system, had already made nearly half a million by following its principles and any one could reap the same handsome

profit if they would only remit funds to the firm at any of their various offices and these were established in London, or rather persons to receive letters at the addresses given, Cleveland Road, Duke St., St. James' and elsewhere. Many credulous French people rose to the bait and none more readily than a certain Countess de Goncourt, a lady of breeding, but with an unfortunate taste for speculation. She forwarded several substantial amounts to London, which were duly invested for her with good results, because the old trick was followed of first allowing her to win. After a time, her transactions grew larger till they attained the sum of £10,000. Several bogus checks were sent her, purporting to be her winnings, but she was requested to hold them until a certain date, in accordance with the English law. These rascals, however, were not satisfied with such large profits, and they wrote the Countess that £1,200 more was necessary to complete certain formalities. As she was now nearly cleaned out, she endeavored to raise the money in Paris through her notary, and this led to the discovery of the whole fraud.

During this time, these rogues had been living in comfort, pulling the wires from London. Benson had made himself secure, as he imagined, by extending a system of suborning the police. Through Meiklejohn, another officer by name Druscovitch, who was especially charged with the Continental business of Scotland Yard, was approached. He was a well meaning man with a good record, but in very straitened circumstances and he fell into the trap. All this time Benson was living in good style at Shanklin, in the Isle of Wight. He had a pretty house named Rose Bank, numerous servants, horses and carriages and entertained many people. Benson soon tried to get another fly from Scotland Yard into his web. Scenting danger from the news that Inspector Clarke was hunting up certain sham betting offices, he invited him down to his place at Shanklin. He, however, did not succeed with Clarke, who placed on trial with the other inspectors, was acquitted. He must have been extremely tried, for Benson showed great tact and cleverly acted upon Clarke's fears by seeming to incriminate him. Then he offered a substantial bribe which Clarke, however, refused.

When the affair culminated Benson had early notice of the danger from his allies in the police. Druscovitch notified him

that a big swindle had come in from Paris. It was theirs and the French police had already begun to act against the firm. They had requested the authorities at Scotland Yard by telegraph to intercept letters from Paris which they believed contained large remittances. But Benson contrived to lay hands on this telegram before it was delivered, and, knowing that he had good friends, Benson held his ground. Druscovitch, on the other hand, became uneasy, thinking that he could not shield his bribers much longer. He had many secret interviews with them and advised them to cease, because he would soon have to look out for himself. It was evidently time for these sharpers to consider their means of retreat. So far they seemed to have held the bulk of their booty in Bank of England notes, a very telltale thing, which can always be traced through the numbers.

However, Benson solved this difficulty by changing the Bank of England notes into Scotch notes, the numbers of which were not always taken on issue. Through Meiklejohn, Benson disposed of £13,000 worth, traveling down to Alloa and getting Clydesdale Bank notes in exchange. To cover this operation Benson had deposited £3,000 in money in the Alloa Bank. He was on excellent terms with the manager of this institution and was actually at dinner with him when a telegram came warning him to leave, for Druscovitch was on his way down with a warrant to arrest him. Benson fled, but, of course, was obliged to forfeit his deposit of £3,000. When Druscovitch arrived his game naturally had gone. He still endeavored to delay the job, but the authorities were more in earnest than he was and England became too hot for Benson.

The exchange of Bank of England into Clydesdale notes was known, likewise some of the numbers of the latter and a watch was therefore set upon the holders of these notes and Benson got over to Holland. Soon after his arrival at Rotterdam he and his accomplices were arrested. But here, at the closing scene, while extradition was being demanded, another confederate, by name Froggatt, a low class attorney, almost succeeded in obtaining their release. He sent a forged telegram to the Dutch police, purporting to come from Scotland Yard, and to the effect that the men they had arrested were the wrong people. The fraud was discovered just in time and

the prisoners were handed over to a party of London police, headed, strange to say, by Druscovitch. His complicity with the swindlers was not yet suspected and he was compelled to carry out his orders. What passed between him and Benson and Kurr is not exactly known, but, as is usual with their class, they had no intention of suffering alone. That they should turn on their police assistants was a matter of course, and one of their first acts in Millbank Prison where they were beginning their long terms of penal servitude, was to make a complete avowal and implicate the detectives. When Clarke, Meiklejohn, Druscovitch, Palmer and Froggatt were put upon their trial, the facts, as already stated, were elicited and it was discovered that the swindlers had for a long time secured the support of all these leading detectives, excepting Clarke. All these misguided men were sentenced to various terms of imprisonment and caused very important changes in the police constitution and the creation of the well-known department for Criminal Investigation.

Benson's first act after release appears to have been to ascertain whether he had inherited anything from his father, who had died while he was in prison. Nothing had been left him, but his family did not quite desert him, because his brother offered to find him a situation. This Benson refused and took the first opportunity of reopening his relations with Kurr, who had been released before him. Soon after this the police missed them and it is probable that they crossed the Atlantic and started as a company of promoters, namely, in connection with mines of a sham character.

Benson appears to have succeeded well in this business and returned to Europe, making Brussels his headquarters and carrying on the exploitation of mines. He appears to have gained the attention of the police, and the Belgian authorities communicated with those of Scotland Yard. Benson was identified and arrested and, at his lodgings were found a great many letters containing postoffice orders and checks, which were sent to him for investment in his bogus companies. He did two years' imprisonment in a Belgian prison and, when released, transferred himself to Switzerland, setting up at Geneva as an American banker of large capital. He received many telegrams from his confederates, who were still working in the United States and he was in the habit of leaving these

telegrams, which, invariably, dealt with large amounts, about the hotel, leaving them carelessly in the billiard or smoking rooms or other apartments where they were read by many and greatly increased his reputation.

At the Hôtel Internationale he made the acquaintance of a retired surgeon-general of the Indian Army, who had an only daughter, to whom he made desperate love. He gave her much jewelry and finally the father consented to marriage. The old gentleman was no less willing to intrust his savings to Benson, upon whose advice he sold out all his property, some £7,000 invested in India stock. The money was transmitted to Geneva and handed over to Benson in exchange for some worthless stock, which was double the doctor's income. Then a telegram came summoning Benson to New York and he left hurriedly.

His fiancée followed to the port at which he said he would embark, but missed him. Mr. Churchward—Benson's alias—had gone to another place, Bremen, to take passage by the North German Lloyd. The surgeon-general, trembling for his funds, applied for a warrant, and Benson was arrested as he was on the point of sailing. He was taken back to Geneva, but, on refunding five out of the seven thousand pounds, he was liberated, and it was then discovered that his presents to the young lady were all imitation jewelry and that the stock he had given in exchange for the £7,000, was really worth only a few pounds.

After this very brilliant piece of work Benson went back to the United States and resumed his operations. He became the hero of many fraudulent adventures, the last of which ended in his arrest. In the City of Mexico he passed himself off as Mr. Abbey, Madame Patti's agent, and sold tickets to the amount of $25,000. This fraud was discovered and he was arrested and taken to New York, where he was lodged in the Tombs. While waiting trial he committed suicide by throwing himself over the railings from the top story, death resulting from fracture of the spine.

One of the most notorious recent mail robberies occurred between Ostend and Brussels in November, 1886. When the express, carrying the English mails to Germany, reached Verviers on Saturday morning, November 27th, it was discovered that the mail van had been robbed. This van had left Ostend at half-past three that morning; it was locked with a padlock and chain. When the train passed through Brussels an official no-

ticed that the padlock and chain were not of the regulation type, but said nothing. When the train reached Verviers, the frontier, the post-office men who were charged with the transfer of the mail bags from the Belgium to the German line, made the same discovery. The true chain and padlock had been removed during the night and another similar in appearance substituted. Then they entered the van and found that it had been ransacked. Of ninety leather mail bags, twenty-two had been cut open, evidently with a sharp knife, and their contents examined. The interior of the van was in great confusion, letters and parcels were scattered about, probably just as they had been examined by the thieves, who were searching only for the registered letters and parcels.

The mail was a particularly heavy one and the night of the robbery had, without doubt, been especially chosen as that one on which the New York bags went from England on their way to Germany. And still more, on this occasion, as no doubt the thieves were aware, a large consignment of diamonds, consisting of forty-one parcels, were in transit from New York to Alexandrovst in Russia, while a large number of letters of credit and money were being forwarded by English bankers to their foreign representatives. It was calculated that the total value of stolen matter amounted to between forty and fifty thousand pounds.

The police at once took up the matter and their inquiries were concentrated particularly upon three individuals who took tickets at Dover for Malines on the previous evening. One of them was a tall man about forty, wearing a gray overcoat and a felt wideawake. He was light complexioned, with a short, light beard, spoke French poorly and traveled second class. The second was a man of fifty, also tall and growing gray, while the third was dark and short. At Ostend it was noticed that these three men showed great eagerness to get seats in the composite carriage, which was the last but one on the train, the last being the mail car. One of the guards declared that they ran like hares from the steamboat and jumped straight into this particular carriage. There were, however, five travelers in all in that compartment, two of them undoubtedly confederates, one of whom it was ascertained beyond doubt was traveling without a ticket and only joined the train at Ostend. These confederates had naturally been charged with the business of ascertaining

the exact position of the mail car and there was very little doubt that all five left the train at Brussels, thus fixing the place of robbery somewhere between Ostend and Brussels. Two of the thieves left the station at Brussels by the entrance opening on Rue de Brabant, while the remaining three left by that on the Place Rogier. It was supposed that they had all left Brussels the same day, three for Calais and two for Paris and the South.

All credit for the arrest is due to the London police. Three of them had gone direct to Calais, two crossed to Dover at once, while the third followed the next day. The other two, who had left the station at Brussels by the door leading into the Rue de Brabant, remained in that city two days and then also went to London.

The thieves now endeavored to get rid of some of their goods and three of them were found to have visited the more noted receivers of stolen goods, offering uncut diamonds for sale. There could be no doubt as to their identity, for they were all well-known criminals, all Englishmen, with photographs at Scotland Yard, and these, when sent over to Belgium, were immediately recognized by the guards and ticket collectors who had seen them on the line. There was, however, a technical difficulty regarding their arrest and, although they were constantly shadowed, they were never taken into custody. It was generally supposed that the notorious American bank robbers, Sheridan and Max Shinburn, were associated with, if not the prime movers in, this daring robbery.

It is, perhaps, not generally known that the real perpetrator of the famous "Jack the Ripper" murders was, to some extent, known to the London police, for, after the last murder, they had brought their investigations to the point of strongly suspecting several individuals, all of them known to be homicidal lunatics, and against three of these they held very plausible grounds of suspicion. Relative to two of them the case was weak, although based on certain very suspicious facts. One was a Polish Jew, a well-known lunatic, who was at large in the district of Whitechapel at the time of the crime, and who afterwards having developed homicidal tendencies, was committed to an asylum. This man was said to look like the murderer by one person who got a glimpse of him, namely, the police constable in Mitre Court. The second possible criminal was a Russian physician, also insane, who had been a convict in both

England and Siberia. This person was in the habit of carrying surgical instruments and knives in his pockets. His previous history was of the very worst, and at the time of the Whitechapel murders, he was in hiding, or at any rate, his whereabouts were never precisely known. The third person was of the same type, but, in his case, the suspicion was even stronger, and there was every reason to believe that his friends entertained serious doubts about him. He also was a physician in the prime of life, believed to be insane or on the frontier of insanity, and he disappeared immediately after the last murder, that in Miller's Court, on November 9, 1888. On December 31st of that same year his body was found floating in the Thames, and was believed to have been in the water for a month. In this case the theory was that, after the last murder, which was the most fiendish of all, his brain entirely gave way and he became furiously insane and committed suicide. There is at least a strong presumption that "Jack the Ripper" died, or was put under restraint after the Miller's Court affair, which ended this series of crime. It would be most interesting to know whether in this third case the man was left-handed, or ambidextrous, both suggestions having been advanced by medical experts after viewing the victims. Other physicians disagreed on this point, which, unfortunately, adds another to the many instances in which medical expert evidence has been of a conflicting nature, not to say, confusing.

That dismemberment, as was done in our well-known Dress-suit Case Affair, is not an uncommon means already many times resorted to in order to dispose of the corpus delicti, is made evident if one consults the writings of Lacassagne of Lyons, one of the first authorities who has dealt lengthily upon this subject. I will here record two instances of interest which occurred in England, namely, the Battersea case and the Waterloo Bridge Mystery. The Battersea case arose from the discovery in September, 1873, of the remains of a body upon the mud banks below Battersea water-works. The expert medical men summoned pronounced it to be the mutilated trunk of a female corpse and to have been barely twelve hours in the water. More discoveries rapidly followed. Another portion of the cadaver was picked up near Nine Elms Station, just off Brunswick Wharf. Then portions of the lungs were found, one under the old Battersea Bridge, the other near the Battersea Railway Pier. They

all corresponded and were easily pieced together as portions of the same body. The head had been severed with a sharp knife, but a saw had also been used. The face half of the head had floated down below Limehouse and was there picked up, although mutilated beyond all recognition. Limbs and portions of limbs were found at Woolwich, Greenwich, Rotherhithe and near the Albert Embankment. It was a curious fact that the pieces below the Bridge had all been picked up on the ebb tide, each piece lower and lower down the river.

The cadaver was reconstituted by Mr. Hayden, the medical officer of the Battersea Union, and was proved to be that of a female. The face, although much battered, bore evidence of a wound on the right temple, which had crushed the skull and had undoubtedly caused instantaneous death. The dismemberment had been done subsequently and only a short time before the pieces were thrown into the river. Attention was at once directed to the reported cases of missing persons, and for some time the body was believed to be that of a Mrs. Cailey, of Chelsea. As this woman was soon afterwards found alive, walking in the King's Road, Chelsea, this theory was exploded. No other hypothesis offered and up to the present time no one has been suspected for this crime.

The Waterloo Bridge Mystery will now be briefly alluded to. This occurred in 1857. The crime was brought to light shortly after daybreak on a morning in October, when two boys rowing a boat up the stream came upon a carpet bag caught upon one of the buttresses of Waterloo Bridge. It was hanging just above the water and had either been placed there over night, or some one from above had thrown the bag down and it had become lodged there. The boys took it, believing that they had secured a prize. It was locked and corded, the rope trailing in the water when first seen. The cord was cut, the lock forced and the contents laid bare. These were the mutilated fragments of a human body, chopped into a number of pieces, and mixed with unmistakable shreds of male clothing. The boys immediately carried their find to the police, the eminent Dr. Taylor making the following report: "That the parts belonged, all of them, to the same body, and were twenty-three in number, mostly bones with flesh adhering to them; that they had been sawn or chopped up so as to go into a small compass; and that the mutilation was obviously intended to destroy identity."

The hands, feet and head were missing. There was nothing left that could assist identification—no marks and so forth—in fact, nothing beyond the fact that the deceased was a dark and hairy man, with one other ominous indication, that of a knife stab in the intercostal space of the third and fourth ribs, which practically was the cause of death, as the direction of the wound plainly indicated that it must have involved the heart. It was further proved by their appearance that the remains had been partially boiled and subsequently salted or placed in brine. Some portions of the interior of the bones had escaped the action of the salt and thus it was possible to arrive approximately to the date of death, which must have been three or four weeks before the discovery of the bag. There were a few other indications that might have constituted clues. The clothes were those of a foreigner and, as already stated, a man's; they were much cut and torn and more or less blood-stained. Most of these stains were on the inside and in the neighborhood of the knife stab, showing that the wound had been inflicted while the clothes were on the body. The knife had also penetrated them.

A reward of £300 was offered for the discovery of the murderer, but remained without effect, and the crime has never been brought home to any one. The police had reason to suspect that the victim was a Swedish sailor, belonging to some ship then lying in the Thames. That he had died from the stab was a self-evident conclusion, and as nothing leading to the identification was forthcoming the mystery was never solved.

Jewelers, or private persons owning jewels, have always been liable to robbery, and many are the ways in which this has been accomplished. Every jeweler in large centers has to defend his stock in trade. The thief sometimes comes in disguised as a lady of means, sometimes as a fashionable man of gentlemanly address, etc. A jeweler once told Major Griffiths of a clever way in which he had lost a valuable chain. His assistant was packing it to send to a customer, when a lady came in and asked for her watch which had been left for repair. The jeweler sent his assistant off in a hurry to get it from the workroom, and the clerk went, leaving the chain on the counter. The jeweler himself did not notice that it was there, but a thief who was watching outside—and thieves are constantly on the watch at jewelers' windows—came in and quietly seated himself at the counter. Meanwhile, the jeweler was busy with another cus-

tomer, to whom he was showing a number of rings; when this was done he swept them into a drawer, for he saw the thief sitting there and recognized him. "Well, what do you want?" he asked; and, on receiving some commonplace reply, he ordered the fellow to get out. When the assistant returned with the watch he asked his employer what he had done with the gold chain. Of course this had disappeared, as the thief had taken it and was already far beyond capture. Jewelers find it advantageous to decorate their shops with many mirrors and they can thus tell at a glance from where they stand what is going on around. I would here relate briefly the recent appearance of a jewel thief working a new and apparently very successful game, and up to the time of writing I am unaware that he has yet been run down.

All over this country one of the most expert flim-flammers has turned up and has been working with a dexterity that would make Keller green with envy. His trail is marked by sorrowing jewelers and pawnbrokers who thought that they had been accommodating a most generous customer for a few minutes. The first of last year, when he was jumping about from Brooklyn to Minneapolis, he got diamonds valued at nearly $7,000 on an investment of $126. Three big pawn shops in New York were robbed by him and one other in Brooklyn. In every case he got his booty by the same method, sometimes alone and sometimes with a young Jewish woman. The man visited the store and asked for diamonds. If the stones did not look valuable enough to him, he would make a second visit. After making his selection, he would make payment with a roll of bills having a rubber band around it. Most of the bills were of large dimensions, with a few one-dollar bills. The jeweler or pawnbroker, on counting the money, would find it one dollar short, and of course would hand it back to be recounted by the "customer." The "customer" on counting the money again would acknowledge the mistake and hand back a silver dollar with the rolled-up bills to correct the error. Then he would go away, and a few minutes later the pawnbroker would find that all the large bills had disappeared from the core of the bundle and that only the one-dollar bills and the silver dollar were left. This flim-flammer first turned up in Jersey City on December 16, 1907, where he got diamonds valued at $600 for $21 through the trick. He was not heard of again until January 29th of last year,

when he robbed a Cincinnati jeweler, obtaining diamonds valued at $825. The next day a Pittsburgh man received a visit from him, and lost diamonds valued at $900, getting only five one-dollar bills in exchange. On February 13th he made a haul of $575 in Louisville. On February 26th he went to Philadelphia, where an investment of twenty-five one-dollar bills netted him $1,385 in diamonds. Brooklyn was the next place, and there he got diamonds valued at $1,370 on March 10th. Immediately on making this haul he jumped to Minneapolis, where he made another three days later which amounted to $1,075. On April 2nd he came back to New York and signalized his return by visiting three pawnshops in Third avenue, making good hauls in each place. This flim-flammer is an undersized man, about thirty years of age, wearing spectacles and smooth-shaven. His companion is about two years younger than he, small and slight.

I would now refer to murders committed by two physicians—one an Englishman, the other a Frenchman—particularly to show how little it takes to induce a man to commit a crime. The first case—that of Dr. Pritchard—was probably carried out from a knowledge of the fearful crime committed by Dr. William Palmer, the sporting doctor of Rugeley, and which was also followed a few years later by a crime after the same pattern, perpetrated by Dr. De la Pommerais of Paris. Palmer's and De la Pommerais' cases are so well known that I only refer to them to show how often later crimes are copied from those accomplished in the past.

Dr. Pritchard had a good medical practice in Glasgow in about 1865. He had been married some fifteen years and had five children by his wife, the daughter of an Edinburgh merchant. They were living in Blythswood Square, Glasgow, and Mrs. Pritchard, being in poor health, her mother had come to nurse her. Suddenly, the latter died and three weeks later Mrs. Pritchard was also buried. Dr. Pritchard gave the certificates in his mother-in-law's case as death from apoplexy, in his wife's from gastric fever.

Neither explanation seemed satisfactory, but the mother-in-law was buried before the police interfered. However, her body was exhumed, when a post mortem in Mrs. Pritchard's case revealed traces of antimony poisoning, and Dr. Pritchard was

arrested on charges of murdering both his wife and his mother-in-law. The evidence brought against him was mainly circumstantial, but it was shown that Mrs. Pritchard's health had suddenly begun to fail mysteriously, with frequent attacks of sickness and violent cramps in the hands and side. When her mother arrived she was also taken with much the same symptoms, and within a fortnight died unconscious.

One motive proved against Pritchard was an intrigue with one of his maid-servants and he had told her, "if my wife dies, I will marry you." Another physician had attended Mrs. Pritchard, and testified that all along he had his suspicions that she was being poisoned with antimony, but he never confided his belief to anybody else, and only spoke of the matter after the death of the victim. Chemists testified that Pritchard had made many purchases of tartar emetic, while further medical evidence ridiculed the idea of death having been due to any such causes as had been certified to by Pritchard. A second and even stronger motive for the murders was that Pritchard was interested in life insurance on both his victims. He was in monetary difficulties, and thought thus to benefit, as did Palmer and De la Pommerais, by compassing their deaths. Pritchard's domestic life was unhappy, and, in addition to his infidelity, he was much given to drink. This crime was vulgar and commonplace and merely deserves mention as one of a wide class.

More recently a respectable physician was driven by professional jealousy to attempt the life of a more successful rival. Dr. Eustachy had enjoyed the best practice at Pertuis in the south of France until another and younger doctor, by name Tournatorie had set up in competition. The new comer soon won the favor of most of Eustachy's clients, and then had the audacity to stand against him as a candidate for the local administration. When Tournatorie won the election, Eustachy attacked him furiously in the local papers, stigmatizing him as a coward, thief, drunkard, etc. That no one should miss these libels, Eustachy distributed the papers widely and mailed them to his enemy's patients. At last Tournatorie cited Eustachy for libel and succeeded in securing his conviction with fine and cost. This was on November 13, 1884. Six weeks later a mysterious present in the form of game reached Tournatorie, half a dozen thrushes delivered

from the railway station by an omnibus driver. They were supposed to come from some grateful patient and were received very thankfully because they came on the very day that the doctor was to give a dinner to some friends. The menu was long, so that, when the thrushes were served, no one touched them and the birds went back to the larder and one was eaten the next day at breakfast by Madame Tournatorie. The effect was extraordinary. She was soon seized with excruciating pains in her head and such extraordinary dilatation of the pupils that she could not read. At the same time she suffered from strange and terrible hallucinations. She saw her grandchildren dead, her husband about to fight a duel, had so many fancies that the doctor feared she was going crazy. The next day she was better, but the cook, having also eaten one of the birds, was taken much in the same way and presented practically the same symptoms. So greatly was her mental balance disturbed that she tried to throw the dog into the fire and made the house horrible by her fierce cries. And last of all, the dog stole a thrush, but it had no effect upon him.

Now, Dr. Tournatorie thought it only proper to make a chemical examination of the remaining birds and they were discovered saturated with sulphate of atropine. This startling news was made public, and, by common consent, Dr. Eustachy was charged with the attempted crime. Damning evidence was soon obtained. It came out that Eustachy had ordered some atropine paste from his druggist, that he had won a prize of game in a friendly lottery, and had selected thrushes in preference to the other game.

Now, this very foolish man, seeing the case absolutely against him, confessed, and seeking to extenuate the circumstances, called it only a practical joke upon Tournatorie. But the court did not see the joke in the same light, especially as the expert declared that the birds contained enough atropine to poison a whole household, and Eustachy was committed for trial. At the Assizes he recanted his confession and made an elaborate, but quite inadequate defense. The case was clearly proved against him and he was sentenced to eight years hard labor. The poisoned birds had been analyzed by an expert, who had isolated the atropine, then photographed the crystals obtained in the analysis and it is said to

have been the first application of microphotography in medical jurisprudence.

The crime now to be related transpired at Paris during the Second Empire, an epoch in the annals of crime replete with some of the most daring murders and thefts which have ever been perpetrated, as all those familiar with the history of crime and criminals are aware. The mise-en-scène of this crime may seem to the reader so improbable as not to be true, but the veracity of all the details which are to be given I can vouch for.

In the old Beaujon quarter of Paris there existed a much decorated dwelling, the strange aspect of which possessed a most irritating originality. The red walls surrounding it, with massive gates, opened, or more correctly did not open, into a garden composed of several terraces. In one angle of the garden stood a building of Italian architecture, not less painted than its possessor, the Duke of Brunswick. This illustrious individual, whose very noble family had given kings to England, was not less eccentric than his hôtel. He was a person quite as mysterious, quite as painted and quite as sinister as the scarlet walls of his singular habitation. In this hôtel, which might be said to resemble a safe deposit vault, the duke possessed diamonds estimated at the value of fifteen million three hundred thousand francs.

The illustrious subject of this sketch was quite as avaricious as he was rich, and although continuing the gallant traditions of his ancestors, he sought the pleasures of the capitol, he saw to it that they were of an inexpensive quality. He only opened his fortified vault for his own personal satisfaction, although it was overflowing with jewels like Ali-Baba's cave. Perhaps the noble duke was not unwise in secluding himself in his house, as he might have done in a cave or a fortress. His family had never pardoned him for his flight, when, exiled from his Duchy, he took the precaution to escape with his traveling case containing fifteen million francs worth of diamonds belonging rather more to the Crown than to him. Under the circumstances, but in an inverse sense, the noble duke had made a parody of the saying of Louis XIV, because in taking with him the diamonds belonging to the State he said: *"L'Etat c'est moi."*

It was therefore intentionally that the duke had made his residence the terror of everybody, like the Chinese, who in order to make themselves feared by their adversaries, hide behind the

carved images of fantastic monsters. It was because the noble duke suspected and feared everybody that he barricaded himself in his house, which was quite as distasteful to behold from its color as it was sinister by its looks.

Now, this was not all, because in order to reach his apartments, a thousand chimes would ring out upon the approach of any intruder. There were bells at all the doors, the latter converging towards the library and sleeping apartment of the duke. In the wall at the back of the bed chamber was placed the vault containing the diamonds, and here the electric bells were in connection with concealed wires which led to a row of loaded revolvers. Upon the slightest pressure on the inside door these revolvers would vomit out such a discharge that, if it did not cause the house to blow up, it would inevitably reduce any intruder to pieces.

Although the duke was most eccentric, he at the same time was a man of precaution; suspicious, miserly and yet luxurious, he imagined that everybody had an eye on his treasures. In this thought he did not exclude either his servants or his mistresses. On the latter point he was not unwise, and likewise he was wrong not in considering his noble family as greatly interested in encouraging the cupidity of his intimate enemies. The voluptuous old duke could give a long list of examples justifying his fears and his excess of precautions, which made glad the hearts of locksmiths and manufacturers of miniature infernal machines.

Although the Duke of Brunswick slept on millions, he nevertheless did not repose upon a bed of roses, and he had many well-founded reasons for his suspicions.

This singular personage could often be seen at the smaller theaters of Paris seated in a stage box, accompanied by a woman not of the better class of the demi monde, an ephemerous mistress whom he changed quite as frequently as he did his diamonds. Seated behind the woman in a discreet shadow beside his majordomo, the duke remained immovable. It would have been quite impossible to have guessed his true features or his age behind the vermillion mask of his impassive face. All was false in this enigmatical person. False was his beard, false his hair, false his whiskers, even to his movements when he made any, and which were regulated as if his body worked automatically by springs. When he arose, a peculiar noise could be heard which resembled the cracking of bones put in motion in a skeleton.

This man, a living dummy and speaking skeleton, was truly horrible to see when one looked upon his immovable and painted features.

The plastic side of his character was regulated as if by clockwork, and the same may be said of his daily existence. The police inspectors were paid to keep an untiring vigil over him and his companions, whom he suspected in the same way as crafty kings suspect the people of their palace. The police were continually watching over this animated cadaver who lived in isolation from his family that he had cheated, and the unknown ones among whom he selected his familiars in order that he might have no connection with his family. He caused much annoyance and trouble to the police because he was the target of all the most crafty criminals of the four points of the earth, who were drawn towards him by the brilliancy of his diamonds, like moths to a candle.

Upon one occasion he ordered a certain person named W—— to make a catalogue of his treasures. When completed, the latter was obliged to plead in order to receive the reasonable price he had asked for his work. At another time a certain woman resorted to him for financial aid, demanding a rather large income, her claim being that of an illegitimate daughter. The newspapers of the day were filled with accounts of lawsuits brought by unknown persons against this unfortunate miser, and consequently it was nothing more than natural, in spite of the peculiarities of his existence, that he resorted to every conceivable precaution in order to defend himself against his enemies. If his house was a fortress, if his gardens were filled with traps, if his rooms were defended by revolvers and electric bells, it was only because the house and its owner were encircled by all the well known criminals of the Continent.

Some English pickpockets, past masters in the art of theft, one day sent to him one of the most desperate of their gang, as the following account will show. The duke had in his employ a young English woman quite as honest as she was pretty and good. He discharged her because he could not obtain from her certain complacencies which cannot be said to figure in the routine work of a maid-servant. The latter, outraged both from the insolence and avarice of her master who had put her out without giving the customary week's notice, decided to avenge herself, and she immediately found her avenger at her side. This

avenger was no less than the duke's valet de chambre, the duke's confidential man, who feigned to be greatly outraged by the conduct of the duke in respect to himself. This valet's name was Henry Shaw, a compatriot of the maid. He was twenty-six years of age and came from Newcastle. He told the girl that he was desirous of taking revenge on the duke for the latter's ingratitude and harshness and he at length offered to share the benefits that he and the girl could derive from their combined work. The maid consented. Their vengeance consisted in the following act. The valet and the ex-servant wrote a letter addressed to a certain English nobleman, and in this letter the servants of the duke said they would undertake to return to the English lord the millions' worth of diamonds which the duke had purloined from his family, stipulating that they were to receive one hundred thousand francs as compensation for their work. The maid-servant consented to write this letter with her accomplice, although it must be said in her behalf that she evinced more or less repugnance at the act.

Quite as honest as vindictive, the girl wrote a few lines in postscript in which she stated that she would not accept her portion of the stipulated compensation, and that the valet would alone undertake the return of the diamonds by means that she was desirous of completely ignoring. This however was all that the thief desired in order to surround his crime with an appearance of chivalry, and once the letter in his possession, he set out to appropriate the duke's diamonds, an accomplishment which he had dreamed of from the time he had entered in his employ. It must be said that such visions had occupied the minds of other servants.

Henry Shaw had not been with the duke a year before he had become an indispensable man in the house on account of his education and excellent bearing, but although this crafty thief had closely studied his master in order to take him in his net, he had none the less carefully studied the access to the vault in order to do away with any difficulties that might be present when the right time came. The vault, crowned with bells like a Chinese hat, bristling with revolvers like the crest of a fortified chateau, was sunk in the wall of the duke's sleeping chamber which joined the library. It was dissimulated by an iron door placed at the head of the bed and covered by silk tapestry which hung around the walls of the room. The vault, as has been said, was defended

by an arsenal of revolvers also hidden in the woodwork of the wall, and might be properly described as a house within a house. It was consequently impossible for a person who did not know the secrets to open the vault without being killed when once it had been closed by its owner. Now on December 7, 1863, the noble duke was awaiting the arrival of his jeweler in order to have some diamonds mounted, and in spite of his custom, he neglected to close the inner door of the vault. Shaw, who had only entered the duke's service in order to seize this moment of forgetfulness on the part of his suspicious master, remarked with joy that the duke, by not closing his vault had left the complicated mechanism at rest and consequently the miniature battery would not explode upon his approach. The Duke of Brunswick had only closed the outer door hidden behind the tapestry, the key of which never went out of his possession. After having waited vainly for the jeweller, the duke left, at the same time requesting Shaw to receive the man in his place, giving him the necessary directions about the setting of the stones.

At length alone, the thief had no other thought than to profit by the opportunity for which he had so long waited. Armed with a pick-lock which he had always carried since he had been in the duke's service, he broke the lock of the first door, then opened the second which was ajar, and consequently did not connect with the electrical apparatus controlling the pistols. When he had once entered he had before him the entire fortune of his master arranged in drawers and shelves, consisting of diamonds, jewels and bags of gold representing the sum of more than fifteen million francs. He filled his pockets, and as one load was not enough for his harvest, he made two trips from the duke's bedchamber to his own, where he emptied his pockets.

After having closed the door in the wall hidden by the tapestry, he returned to his chamber, filled his traveling bag with his spoils, and without awaiting the return of his master he set out for the railroad station, although in the first place he was careful to request another servant to take his place when the duke returned, giving as a pretext that he was quite ill.

When the duke returned and found Shaw's substitute, who announced to him that the servant was ill, he at once became suspicious. He rushed to the door in the wall behind his bed and found the lock broken and the door itself almost shattered to bits. There was no longer any doubt he had been robbed. He opened the

inner door in the vault and found that the thief had carried away about two million francs worth of diamonds and bank notes. The valet's room was searched and its general disordered appearance only told too plainly what its occupant had been doing. On the floor was strewn a few diamonds which had either been left in the hurry of the flight or had not been considered worth taking by Shaw.

The duke immediately notified the police and orders were immediately given out at headquarters to run down the culprit.

In this particular case the detectives at Scotland Yard combined with the Paris police and rendered Shaw's arrest a comparatively easy matter. It will be recalled that Shaw, who was a very crafty criminal, had used the maid-servant as his accomplice, he having been able to do this on account of her desire for revenge. In this way he had hoped to give a better aspect to his theft, but unfortunately for him what he thought would save him, in reality was his loss. The letter sent to the English nobleman had caused much indignation at the court and was at once turned over to the police at Scotland Yard, and from here was immediately dispatched to the Paris police. Shaw had, like his accomplice the maid-servant, added a postscript to the letter, in which he said that he would remain for two hours at Boulogne in order to meet any messenger who might be dispatched from England, and would turn over to him the Duke of Brunswick's diamonds in exchange for the sum of one hundred thousand francs. Consequently, the Paris police were immediately put upon the scent and knew the route the culprit had taken in his flight. The two hours which he had given to meet the messenger from London was in reality most illusive, because it was just enough time in which to wait for the steamer plying between Boulogne and Folkstone. Here again Shaw did what all thieves of quality in France do, namely, to take the packet and reach London where he could place the products of his theft in safety. By so doing he not only hid his treasure from the police, but at the same time he would also be assured the protection of the English nobleman against the duke whom he had robbed.

In this respect at least he was very much deceived, because when his letter reached the Paris police the famous Monsieur Claude, at that time the chief of the detective department, was able to catch the express for Boulogne, and the two hours that Shaw had accorded to the English messenger was just enough

time for this able detective to reach the fugitive before he had set foot on the steamer.

Claude took the night express, reached Boulogne at dawn and, being perfectly familiar with the habits of thieves of Shaw's type, he immediately despatched two inspectors he had brought with him to search all the first-class hotels of the city. In less than an hour, and before the steamer had given its signal for departure, Claude had discovered Shaw's whereabouts. This was at the Hotel d'Angleterre. He asked to speak with him, and when the latter made his appearance he opened his conversation by presenting Shaw with the letter that had been addressed to the English nobleman, at the same time saying that he was the latter's messenger.

Shaw appeared extremely disturbed, for although he wished to be protected by the noble English family, he at the same time was not desirous of appearing personally in the affair. His disturbed state of mind was still more evident when the two inspectors joined Claude and when the latter drew forth his warrant for arrest. He consequently was brought back to Paris to stand trial.

Henry Shaw was in reality a professional thief of the type of Benson and Wilson, and the robbery committed on the Duke of Brunswick was by no means his first criminal act. An Englishman by birth, he had lived in Prussia and Poland, changing his name quite as easily and often as he did his various residences. At Warsaw he had perpetrated a very considerable robbery at the home of one of his uncles, and others in various large continental cities. He belonged to a gang of notorious crooks who had purposely selected him as the one most capable to plan and carry out this diamond robbery, and he came to France in 1863 only with the intention of stealing the duke's jewels.

At this time Shaw was twenty-six years of age, and belonged to what may be termed the interesting type of thief, a chevalier d'industrie, a criminal without shame, combining much address and skill with audacity, and who would be in no way mortified if caught in the act. He was of tall stature, thin and well proportioned, and always dressed with utmost care and taste.

When the trial came up at the Court of Assizes, the Duke of Brunswick, who knew about the letter written to the English nobleman, would not appear to testify as he was fearful that a scandal might be the result. He, therefore, gave as an excuse

that he was ill, and having gained possession of his diamonds he merely brought most indefinite charges against Shaw through one of his friends.

The trial presented many ludicrous episodes on account of the testimony and bearing of Shaw throughout, but he was convicted and sentenced to twenty years at hard labor.

Thus terminated one of the most daring robberies of modern times. Everybody is probably aware that at his death the Duke of Brunswick left the majority of his large property to the city of Geneva, which was his last refuge and where he died at an advanced age. It could only be a character like that of the roué old duke who would paint his mansion red, place his confidence in a professional thief and leave to Switzerland what really belonged to Hanover.

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## A SUCCESSFUL DEMONSTRATION OF THE PROBLEM OF OBTAINING STERILE COWS' MILK

By JOHN T. HOWELL, M. D.,
*Newburgh, N. Y.*

The importance and necessity of providing clean, raw milk for invalid and infant feeding becomes more and more evident as we have brought to our attention one after another of the infectious microbes proven to enter the system through the medium of milk. In view of such dangers it would seem that physicians must take the stand that milk is unsafe food, at least for the babes and sick, unless it be " Certified " or " Pasturized " and the latter within a short time before being used.

The possibility of obtaining sterile milk from the cow had until recently been denied by many of the most competent investigators, although it was believed that the milk as suckled by the calf was possibly sterile.

The impetus which finally resulted in this much desired standard of perfection, began with the movement inaugurated by Dr. Coit who formulated the plan of a milk commission to supervise the production and certify to the purity and quality of milk obtained from certain dairies which were to be voluntarily placed under the control and direction of said commission composed of a local board of physicians, unpaid.

The original standard required to obtain this endorsement was an acidity of not more than 0.2 per cent., butter fat at least 3.5 per cent., and not more than 30,000 bacteria per cubic centimeter.

This seemed a most difficult standard at first, when it had been shown that the bacterial count of the average market milk ranged from 500,000 up. Notwithstanding this obstacle the increased price promised by the sale of such milk soon stimulated a number of dairymen to undertake the proposition, and now in many cities certified milk has a large sale and its value is becoming more and more appreciated. There has, moreover, been a decided advance in the standard of this certified milk and it is to some remarkable results which have been obtained under my own observation that I invite your attention briefly.

Five years ago the proprietor of the Brookside Dairy Farms, near Newburgh, consulted me regarding the best means of securing germ-free milk from his dairy. He had made a careful study of the subject and had adopted the rules and regulations of the Milk Commission, but was desirous of accomplishing better results than had yet been obtained. I laid down for him the well-known principles of aseptic surgical technique, emphasizing the importance of attention to detail, and he began to apply those principles in the management and care of the dairy work. His stables and milk house were made models in construction, providing for all necessary ventilation, cleanliness, sterilization, refrigeration, etc.

The cows were most carefully selected and only those were purchased which had been subjected to the tuberculin test, which was afterwards repeated every six months.

The cleanliness of the cows was particularly looked after, and it is interesting to note that one hour and a half was spent in the preparation of the cows and the milkers before the operation of milking was undertaken. A bacteriological record of the specimens taken monthly by the inspector from the pail of each milker was carefully kept and the milker received a substantial reward if his monthly bacterial count proved to be the lowest. The personal cleanliness of these men has been most carefully watched and every other known source of contaminating the milk has been excluded.

The results of these painstaking measures were apparent from the first, but the continued careful supervision and instruction

of the milkers, especially regarding the importance of little things in obtaining and preserving the milk, has finally led to a record which has not yet been equalled, and one which includes the first specimen of sterile milk ever recorded and the only sterile specimens taken from bottles delivered in New York city. A further evidence of the control which the strict technique practiced in this dairy had in preventing contamination of the milk was shown by the fact that after a fire which destroyed the milking shed, the same methods employed in temporary quarters resulted in even sterile specimens being obtained.

The following data selected from reports of specimens of milk obtained from this dairy at the barn and as delivered in New York city and examined by the Milk Commission of the Medical Society of the County of New York are submitted:

The first plate having no growth was from a sample from pail taken at the barn and counted March 10th, 1904.

The first sterile sample of milk taken from a bottle which had reached New York city was counted January 24th, 1906.

From December 18th, 1905, to February 5th, 1906, during eight consecutive weeks the average bacterial count of samples obtained in New York was 87.5 per cubic centimeter and contained two plates without growth.

A report dated February 26th, 1906, of nine samples taken by an inspector who visited the farm showed six plates containing no growths and the other specimens containing but 100, 200 and 300 colonies per cubic centimeter.

The average bacterial count for the years 1906 and 1907 was below 1,000 per cubic centimeter.

The average weekly bacterial count for the year 1908 (8 mos.) was 126.1 per cubic centimeter, and one-third of the specimens were sterile.

Reports of specimens obtained from bottles sent to New York city for ten consecutive weeks after the fire in August, 1907, gave an average of 315 colonies per cubic centimeter, and out of twenty-six samples collected at the dairy during the same period seven contained no growth.

Reports from eighty-three specimens taken from various places about the dairy during the first half of 1908 gave a result of fifty-seven plates containing no growths, the best series of which was eleven out of thirteen specimens examined June 1st, 1908, and ten out of thirteen specimens examined August 10th, 1908.

Examinations of seven specimens of foremilk from the teats showed three sterile plates.

In closing I wish to report some practical tests of the keeping powers of the milk from this dairy:

1. A bottle of milk sent to Copenhagen, Denmark, was found sweet after fifteen days.

2. A bottle of milk sent to Panama, Central America, was found sweet after eighteen days.

3. A bottle of milk placed in the refrigerator at the dairy was found sweet at the end of forty-three days.

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## ETHER GAS ANESTHESIA.

*Read before the Otsego County Medical Society, December 8, 1908, at Oneonta, N. Y.,*

By CHARLES R. MARSH, M. D.,
*Oneonta, N. Y.*

Although the majority of physicians are apparently little interested in the subject of Anesthesia, and a great many treat it with indifference, yet the fact remains that the surgeon or anesthetist who is daily occupied with the question, and who now and then has the opportunity or misfortune to labor most strenuously to keep life this side of the river Styx (the result of too much anesthetic, debilitated condition of patient, or perhaps from shock of extensive operation) that man learns to have considerable respect for the dangers likely to arise during the administration of an anesthetic. The more experience he undergoes the more firmly he will endeavor to obtain a trained anesthetist and insist on the safest and best form of anesthetic for the particular case in hand.

Without going into the history of general anesthetics you will all agree with me that ether and chloroform are acknowledged the two most generally used. Ether may be said to be by far the safest agent we have at the present time for any operation of length. Chloroform is pleasant to take and has a few advantages as to post-anesthetic nausea. It is agreeable for short operations but has the unpleasant faculty of starting your patient for the

next world in much too rapid a manner. Admitting its indications under certain conditions yet whenever possible ether or ether in combination with nitrous monoxide is much to be preferred.

In administering ether with gas we require a special apparatus which is familiar to most of you. This inhaler is composed of three apartments, which, when the side of the apparatus is turned, can give a clear channel of air, gas, or ether, pure. The ether apartment is packed with strips of gauze or better, cotton flannel, upon which we pour about four drams of ether. The slide is now turned to the gas channel where a connection with a gas tank is made by rubber tubing, having a rubber bag between. The mouth-piece of the inhaler is of rubber which may be distended with air so forming a soft cushion.

The technique of administration is simple. Pressing the mouthpiece firmly down on face we then fill the bag three-fourths full of gas. At this time we have the channel open to the air so that the patient is becoming accustomed to the mask. Then by turning a small attachment at the top we connect the bag of gas with the gas channel so that the gas flows directly down on mouth and nostrils of patient. We now allow more gas to slowly pass into the bag while the patient is breathing directly into air, it being so arranged by valves that gas is inhaled and air exhaled through a particular opening. Quickest anesthesia will be produced when an atmosphere of gas only is present, any admission of air working against this aim. Enough gas should be given to carry the patient well into the ether influence later. In this way there is no stage of excitement and no appreciation of the smothered sensation of ether. Simply the pleasant taste and the patient early passes into insensibility.

The best signs as to time for passing to ether are: heavy breathing, cynotic color, loss of conjunctival sensation, and twitching and jerking of muscles. When this stage is reached we slowly turn the side of the inhaler until the ether apartment allows a partial surface of the ether-saturated gauze to mix with the gas so that the patient for a few respirations breathes the two agents. Then we gradually turn more ether and less gas until we are giving pure ether, when the gas connection is removed. Fresh ether can now be added through a pocket in the top as needed, usually giving about two drams at a time.

There is also a small top sliding valve with which the amount of air is regulated. Immediately after passing under gas the

patient will become cynosed, due to the gas, which state soon disappears under ether and proper allowance of air.

The advantages of this apparatus are: First, the dread of experiencing the suffocating and irritating action of ether is entirely eliminated, for the primary anesthesia is under gas and is mild and pleasant, with no stage of excitement; second, the tight apartment containing ether together with the warm respiration, results in raising the temperature of the ether, removing the chill so that the vapor produced is far less irritating to the lungs than the cold, and is also more rapidly absorbed; third, we can carry along a patient completely anesthetized with far less ether than with the open cone, which means not only much to the patient's general condition but is less expensive. Again, the mask is small and is more convenient to hold over the face and keep jaw in place, which can be done with one hand, leaving the other free. Also the mask allows free inspection of the eyes and much of the face; fourth, the post-anesthetic nausea is practically nil because of the very small amount of ether used and very little swallowed.

In a few cases the open cone has advantages, especially in alcoholics where we must give a large quantity of ether and also of air to produce complete relaxation. And again, in the closed cone, the amount of air admitted must be watched, or too much ether with an insufficient amount of air will produce a cynotic condition. This is governed by the color of the face, the ears usually showing a change first.

The administration of ether and gas is more successful, less dread to the patient, and less ether is required, if one-half hour before anesthetic, one-fourth grain of morphine is injected while the patient is in bed.

As in all lines of work the more experience we have in a given subject the more proficient we naturally become. To fully appreciate the ether-gas method requires close observation in practice. Like anesthesia in general it is impossible to tell exactly how to do it. Personal work only will teach the finer points for producing the best anesthetic we have at the present time.

# Editorial

To counteract the effects of the foul air in Newgate, they erected on the top of the gate, in April, 1752, a windmill, which by a system of ventilation invented by Dr. Hales, withdrew it from the prison, its place being taken by fresh air. According to our modern ideas, it was very faulty in construction, and their ideas of chemistry at that time were somewhat crude. "It is well known, by long, and too frequent experience, that the destructive gaol distemper, is occasioned by bad air in prisons, which is filled with the great quantity of vapors that arise from the breath and perspiration of the prisoners; which being, as Dr. *Keil* found it here in *England,* at the rate of 39 ounces in 24 hours, from one person, this in 100 prisoners will amount to 243 pounds. Now such close, confined air, by long stagnating, is very apt to putrify; and putrifaction being the most subtle and powerful dissolvent in nature, it dissolves the blood and humours of human bodies, and, thereby, produces that very infectious, pestilential disease, which is called the gaol distemper. And such close confined, damp, putrid air, will not only dissolve human bodies, which are framed of materials strongly tending to putrifaction; but, also, even heart of oak, as is well known by daily experience everywhere."

CHARLES GORDON.

*The Old Bailey and Newgate.*

**The Albany Hospital**

The reports of the various departments of the Albany Hospital for 1908, or, more strictly speaking, for the year ending September 30, 1908, have recently been distributed. The pamphlet follows the usual style adopted during the last few years, except that "The Appeal," which has hitherto been incorporated, is inserted as a separate leaflet. Inasmuch as the "Appeal" is the important document, the emphasis thus given is justified. From a financial and administrative point of view the year has been unusually reassuring. The contributions for the deficit in running expenses amounted to nine thousand, two hundred and forty-nine dollars, the largest amount yet received in any one year for this purpose. The floating indebtedness, largely remain-

ing from unpaid balances due upon construction, and amounting to forty-five thousand dollars was paid, nearly half of this having been subscribed individually by the Board of Governors. So that, now, the Hospital is out of debt.

The receipts for the year were $143,100.39, and the disbursements $142,426.12. These figures convey an idea of the magnitude of the work, and also speak well for the administration, which, as executive and superintendent, Dr. Harold C. Goodwin has so acceptably directed. In reviewing the details of his report, the reader is impressed with the severe use to which public buildings of this kind are subjected, and the necessity of unremitting attention to repairs and the preservation of the property, which so quickly deteriorates when neglected. The number of patients treated in the hospital was 3,238, and the average daily population was 186, twenty-three less than during the preceding year. Of these 726 were public patients, for whom was paid less than the cost of care. The recoveries numbered 2,055; those improved, 655; unimproved, 155; died, 199, and remaining 174. The endowment of the hospital, capitulated under the General Fund, the Lathrop, Campbell, Appleton Memorial and Pavilion F funds, amounts to $244,534.32.

The Bender Laboratory examined for the hospital 1,556 specimens and conducted forty-four autopsies. In the Out-Patient Department 1,239 patients were treated, with a total of 6,066 visits. In the training school for nurses are one superintendent, one assistant superintendent, three supervising nurses, three head nurses, one dietitian, and eighty-two pupils. The course of training is three years, and includes recitation and bed-side instruction, in addition to lectures by twenty-two physicians.

When it is carried in mind that the public wards and dispensary services are open to classes of medical students, that externes are regularly engaged during the college year, that the resident staff consists of nine internes, the great activities of this institution are brought to light, not only in the relief of suffering, but in the educational influences so important to the large territory which utilizes its resources.

# Little Biographies

## XXV. PERCIVALL POTT

THE name of Percivall Pott is a household word among surgeons throughout the world, but to most of them it probably represents nothing more than a special kind of fracture of the leg and a particular form of spinal disease. Although he was one of the leading surgeons of the eighteenth century, the author of several works which had a great influence on the development of surgery, and one of the teachers of John Hunter, the materials for a picture of the man are very scanty. Such as they are, they have been gathered together by Mr. D'Arcy Power in the "Dictionary of National Biography" from which the following is an abstract of the record there given:

Pott was the son of a London scrivener and was born in Threadneedle street on January 6, 1713. His father died when he was but three years' old leaving the family in straitened circumstances. After a meagre preliminary education he was bound apprentice, in 1729, to Edward Nourse, then assistant surgeon to St. Bartholomew's Hospital. Nourse gave private lessons in anatomy, and Pott prepared the subject for demonstration. He seems to have acquired a considerable reputation while still an apprentice. A minute book in the possession of the Barbers' Company records the fact that on "7th September, 1736, Percivall Pott was admitted into the Freedom of the Company by service, upon the testimony of his master, and was sworn." On the same day he received a diploma testifying his skill, and "empowering him to practice." In 1739 he took the livery of the Barber Surgeons' Company.

On the dissolution of that body in 1745, he became an active member of the Corporation of Surgeons, and in 1753 he and Hunter were elected the first lecturers on anatomy. After holding various offices, in 1765 he succeeded Robert Young as master, or governor, of the Corporation of Surgeons. He was appointed assistant surgeon to St. Bartholomew's Hospital in 1744, becoming full surgeon in 1749.

Pott introduced many improvements into surgical practice, not the least of which was the abandonment of the actual cautery, which before his day was in such constant use that it was regularly kept heated for the surgeon's visits. In 1756 he met with an accident which led him to give special attention to the fracture which now bears his name. The following account of it is quoted by Mr. Power:

"As he was riding in Kent street, Southwark, he was thrown from his horse, and suffered a compound fracture of the leg, the bone being forced through the integuments. Conscious of the dangers attendant on fractures of that nature, and thoroughly aware how much they may be increased by rough treatment or improper position, he would not suffer himself to be moved until he had made the necessary dispositions. He sent to Westminster, then the nearest place, for two chairmen to bring their poles, and patiently lay on the cold pavement—it being the middle of January—till they arrived. In this situation he purchased a door, to which he made them nail their poles. When all was ready he caused himself to be laid on it, and was carried through Southwark, over London Bridge, to Watling street, near St. Paul's where he had lived for some time. At a consultation of surgeons the case was thought so desperate as to require immediate amputation. Mr. Pott, convinced that no one could be a proper judge in his own case, submitted to their opinion, and the proper instruments were actually gotten ready, when Mr. Nourse (his former master and then colleague at St. Bartholomew's Hospital), who had been prevented from coming sooner, fortunately entered the room. After examining the limb he conceived there was a possibility of preserving it. An attempt to save it was acquiesced in, and succeeded."

During the enforced leisure that followed this accident Pott turned his attention to the writing of books. His first production was a treatise on ruptures, which, according to modern authorities may still be read with advantage and instruction. It appeared in 1756 and was followed by a series of works on fistula lachrymalis (1757); wounds and contusions of the head and fractures of the skull (1760); hydrocele (1762); fistula in ano (1765); injuries to the head from external violence (1768); fractures and dislocations (1768); the radical cure of hydrocele (1771); chirurgical observations—on

cataract, chimney sweep's cancer, ruptures, on injuries of the head and on fractures and dislocations (1775); palsy of the lower limbs accompanying curvature of the spine (1779); and several others.

The most important of Pott's writings are those on ruptures, on injuries of the head and on fractures and dislocations. He expressed his ideas in a clear and attractive style, and it is this quality as well as his exactness as a clinical observer that makes his books still worth reading. Pott's teaching and writings influenced the surgical profession throughout Europe, for his principal works were translated into French, Italian, German and Dutch.

The biographers describe Pott's character as a very pleasing one. He is portrayed as a scholar, fond of the classics, a great reader, blessed with excellent memory and judgment. According to his contemporaries "he was the principal author of that simplicity which distinguishes our present practices from that of our ancestors" and "he had acquired the faculty of speaking readily and with incredible perspicuity and correctness and with a most harmonious and expressive elocution."

In 1764 Pott was elected a Fellow of the Royal Society and in 1786 the Royal College of Surgeons of Edinburgh conferred on him its Honorary Fellowship with the declaration that "he was the first gentleman of the faculty they had thought proper to bestow the honor on." In the same year he was elected an honorary member by the Royal College of Surgeons of Ireland.

In 1787 Pott resigned the office of surgeon to St. Bartholomew's Hospital, which in his own words, he had served, man and boy, for fifty years. At the end of the following year he died of pneumonia at the age of seventy-four.

George E. Beilby.

# Public Health

**Edited by Joseph D. Craig, M. D.**

DEPARTMENT OF HEALTH—ALBANY, N. Y.

ABSTRACT OF VITAL STATISTICS, DECEMBER, 1908.

*Deaths.*

| | 1904 | 1905 | 1906 | 1907 | 1908 |
|---|---|---|---|---|---|
| Consumption | 22 | 23 | 17 | 20 | 17 |
| Typhoid fever | 1 | 1 | 2 | 2 | 2 |
| Scarlet fever | 3 | 1 | 0 | 1 | 1 |
| Scarlet fever | 0 | 1 | 0 | 1 | 1 |
| Whooping-cough | 0 | 1 | 0 | 0 | 0 |
| Diphtheria and croup | 2 | 1 | 9 | 2 | 2 |
| Grippe | 1 | 0 | 2 | 5 | 1 |
| Diarrhœal diseases | 1 | 1 | 2 | 5 | 6 |
| Pneumonia | 15 | 13 | 18 | 13 | 14 |
| Broncho-pneumonia | 7 | 5 | 6 | 3 | 4 |
| Bright's disease | 17 | 21 | 14 | 17 | 13 |
| Apoplexy | 11 | 9 | 4 | 9 | 10 |
| Cancer | 11 | 4 | 9 | 10 | 10 |
| Accidents and violence | 5 | 4 | 11 | 4 | 10 |
| Deaths over seventy years | 21 | 20 | 13 | 37 | 29 |
| Deaths under one year | 13 | 9 | 11 | 16 | 18 |
| Total deaths | 151 | 132 | 157 | 161 | 162 |
| Death rate | 17.77 | 15.53 | 18.47 | 18.94 | 19.06 |
| Death rate less non-residents | 16.95 | 14.35 | 16.83 | 16.71 | 17.89 |

*Deaths in Institutions.*

| | 1904 | | 1905 | | 1906 | | 1907 | | 1908 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Resident | Non-resident | Resident | Non-resident | Resident | Non-resident | Resident | Non-resident | Resident | Non-resident |
| Albany Hospital | 6 | 3 | 8 | 3 | 8 | 5 | 7 | 9 | 9 | 5 |
| Albany County Jail | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| Albany Orphan Asylum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Child's Hospital | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| County House | 3 | 1 | 5 | 0 | 1 | 0 | 3 | 1 | 3 | 2 |
| Home for Aged Men | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Home for Friendless | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Homeopathic Hospital | 1 | 1 | 0 | 1 | 4 | 2 | 5 | 1 | 4 | 0 |
| Hospital for Incurables | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| House of Shelter | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Little Sisters of the Poor | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| Public places | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 |
| St. Margaret's Home | 2 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| St. Peter's Hospital | 3 | 1 | 3 | 4 | 6 | 3 | 5 | 4 | 7 | 0 |

| | |
|---|---|
| Births at term | 96 |
| Still births | 9 |
| Premature births | 2 |

### Bureau of Plumbing, Drainage and Ventilation.

In the Bureau of Plumbing, Drainage and Ventilation there were two hundred and thirty-nine inspections made of which one hundred and sixteen were old houses and one hundred and twenty-three were new houses. There were seventy-seven iron drains laid, forty-eight connections to street sewers, fifty-two tile drains, one cellar drainer, eighty cesspools, sixty-six wash basins, ninety-six sinks, fifty-five bath tubs, fifty-five wash trays, one butler's sink, one trap hopper, one hundred and twenty-six tank closets, two slop hoppers. There were one hundred and twelve permits issued, of which ninety-two were for plumbing and twenty for building purposes. There were forty-four plans submitted, of which six were of old buildings and thirty-eight of new buildings. There were eight houses tested, four with blue or red and four with peppermint. There were thirty-three water tests made. Twenty-nine houses were examined on complaint and seventy-three were re-examined. Eight complaints were found to be valid and twenty-one without cause.

### Bureau of Contagious Diseases.

*Cases Reported.*

| | 1904 | 1905 | 1906 | 1907 | 1908 |
|---|---|---|---|---|---|
| Typhoid fever | 6 | 2 | 3 | 12 | 15 |
| Scarlet fever | 14 | 14 | 14 | 31 | 9 |
| Diphtheria and croup | 12 | 10 | 65 | 15 | 19 |
| Chickenpox | 23 | 3 | 0 | 3 | 25 |
| Measles | 0 | 1 | 2 | 31 | 3 |
| Whooping-cough | 0 | 0 | 0 | 0 | 0 |
| Consumption | 0 | 0 | 2 | 28 | 36 |
| Totals | 55 | 30 | 86 | 120 | 107 |

*Contagious Disease in Relation to Public Schools.*

| | *Reported* | | *Deaths* | |
|---|---|---|---|---|
| | D. | S. F. | D. | S. F. |
| Public School No. 2 | 1 | .. | .. | .. |
| Public School No. 4 | .. | 2 | .. | .. |
| Public School No. 5 | 1 | .. | .. | .. |
| Public School No. 6 | .. | 1 | .. | .. |
| Public School No. 9 | 1 | .. | .. | .. |
| Public School No. 21 | .. | 2 | .. | .. |
| High School | 1 | .. | .. | .. |
| Holy Cross School | 1 | 1 | .. | .. |
| Lady of Angels | .. | 1 | .. | .. |
| St. Patrick's | 3 | .. | .. | .. |

Number of days quarantine for diphtheria:
Longest..... 28 Shortest..... 11 Average..... 18 3/7
Number of days quarantine for scarlet fever:
Longest..... 34 Shortest..... 21 Average..... 27
Fumigations:
Houses..... 23 Rooms..... 60

| | |
|---|---|
| Cases of diphtheria reported | 19 |
| Cases of diphtheria in which antitoxin was used | 17 |
| Cases in which antitoxin was not used | 2 |
| Deaths after use of antitoxin | 2 |

### Bender Report on Tuberculosis.

| | |
|---|---|
| Positive | 10 |
| Negative | 30 |
| Failed | 0 |
| Total | 40 |

### Tuberculosis.

| | | | |
|---|---|---|---|
| Living cases on record December, 1908 | | | 227 |
| Reported during December, 1908 | 2 | | |
| Reported by telephone | 10 | | |
| Reported by Bender | 0 | | |
| Reported by card | 25 | | |
| | | 27 | |
| Dead cases reported by certificate | | 10 | |
| | | | 37 |
| | | | 264 |
| Dead cases previously reported | | 6 | |
| Dead cases not previously reported | | 10 | |
| | | | 16 |
| Living cases on record January 1, 1909 | | | 248 |

### Total Tuberculosis Death Certificates Filed.

| | |
|---|---|
| December, 1908 | 17 |

### Bureau of Pathology.

*Bender Laboratory Report on Diphtheria.*

| | 1904 | 1905 | 1906 | 1907 | 1908 |
|---|---|---|---|---|---|
| Initial positive | 12 | 10 | 43 | 15 | 17 |
| Initial negative | 24 | 24 | 78 | 70 | 37 |
| Release positive | 3 | 13 | 92 | 24 | 24 |
| Release negative | 8 | 11 | 87 | 68 | 40 |
| Failed | .. | .. | 11 | 2 | 29 |
| Total | 47 | 58 | 311 | 179 | 147 |

| | | | | |
|---|---|---|---|---|
| Test of sputum for tuberculosis: | | | | |
| Initial positive | 2 | 4 | 4 | 11 |
| Initial negative | 1 | 3 | 21 | 27 |

### Miscellaneous.

| | |
|---|---|
| Mercantile certificates issued to children | 32 |
| Factory certificates ssued to children | 9 |
| Children's birth records on file | 41 |
| Number of written complaints of nuisances | 20 |
| Privy vaults | 2 |
| Plumbing | 8 |
| Other miscellaneous complaints | 10 |
| Total number of dead animals removed | 490 |
| Cases assigned to health physicians | 80 |
| Calls made | 252 |

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## Department of Health—Albany, N. Y.

### Abstract of Vital Statistics, January, 1909.

*Deaths.*

| | 1905 | 1906 | 1907 | 1908 | 1909 |
|---|---|---|---|---|---|
| Consumption | 22 | 14 | 16 | 20 | 18 |
| Typhoid fever | 1 | 2 | 3 | 1 | 2 |
| Scarlet fever | 0 | 0 | 0 | 3 | 0 |
| Measles | 0 | 0 | 1 | 0 | 0 |
| Whooping-cough | 1 | 0 | 3 | 1 | 0 |
| Diphtheria and croup | 0 | 1 | 4 | 7 | 0 |
| Grippe | 3 | 3 | 4 | 13 | 4 |
| Diarrhœal diseases | 3 | 2 | 0 | 1 | 2 |
| Pneumonia | 21 | 15 | 23 | 22 | 8 |
| Broncho-pneumonia | 5 | 4 | 3 | 2 | 2 |
| Bright's disease | 19 | 17 | 14 | 16 | 21 |
| Apoplexy | 14 | 8 | 10 | 14 | 8 |
| Cancer | 9 | 13 | 10 | 15 | 9 |
| Accidents and violence | 8 | 3 | 5 | 12 | 5 |
| Deaths over seventy years | 41 | 28 | 41 | 58 | 37 |
| Deaths under one year | 16 | 15 | 11 | 9 | 15 |
| Total deaths | 181 | 145 | 180 | 207 | 140 |
| Death rate | 21.30 | 17.06 | 21.18 | 24.36 | 16.47 |
| Death rate less non-residents | 20.01 | 15.77 | 19.18 | 22.00 | 15.41 |

*Deaths in Institutions.*

| | 1905 | | 1906 | | 1907 | | 1908 | | 1909 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Resident | Non-resident | Resident | Non-resident | Resident | Non-resident | Resident | Non-resident | Resident | Non-resident |
| Albany Hospital | 8 | 6 | 7 | 7 | 12 | 4 | 11 | 8 | 5 | 3 |
| Albany Orphan Asylum | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| County House | 4 | 0 | 1 | 2 | 6 | 0 | 8 | 2 | 6 | 0 |
| Child's Hospital | 0 | 0 | 0 | 0 | 3 | 2 | 0 | 0 | 0 | 1 |
| Homeopathic Hospital | 1 | 0 | 0 | 0 | 1 | 5 | 2 | 1 | 3 | 0 |
| Dominican Convent | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Home for Friendless | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| Hospital for Incurables | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Little Sisters of the Poor | 1 | 0 | 0 | 3 | 5 | 0 | 3 | 0 | 5 | 0 |
| Penitentiary | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |
| Public places | 2 | 1 | 2 | 0 | 0 | 1 | 0 | 1 | 2 | 2 |
| St. Margaret's House | 1 | 0 | 4 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| St. Peter's Hospital | 3 | 3 | 4 | 1 | 3 | 4 | 3 | 2 | 6 | 3 |

| | |
|---|---|
| Births | 77 |
| Still births | 8 |
| Premature births | 1 |

## Bureau of Plumbing, Drainage and Ventilation.

In the Bureau of Plumbing, Drainage and Ventilation there were two hundred and thirty-four inspections made of which one hundred and four were old buildings and one hundred and thirty were new buildings. There were sixty-five iron drains laid, twenty-eight connections to street sewers, twenty-eight tile drains, fifty-three cesspools, sixty wash basins, sixty-six sinks, fifty-three bath tubs, fifty-two wash trays, one hundred and twelve tank closets. There were seventy-two permits issued, of which sixty-eight were for plumbing and four for building purposes. There were thirty-five plans submitted of which five were of old buildings and thirty of new buildings. There were six houses tested, two with blue or red and four with peppermint, and there were eighteen water tests. Twenty houses were examined and thirty-four were re-examined. Seven complaints were found to be valid and thirteen without cause.

## Bureau of Contagious Diseases.

*Cases Reported.*

| | 1905 | 1906 | 1907 | 1908 | 1909 |
|---|---|---|---|---|---|
| Typhoid fever | 5 | 4 | 10 | 9 | 6 |
| Scarlet fever | 4 | 14 | 13 | 41 | 11 |
| Diphtheria and croup | 7 | 9 | 42 | 25 | 5 |
| Chickenpox | 8 | 8 | 1 | 0 | 12 |
| Measles | 10 | 4 | 10 | 43 | 1 |
| Whooping-cough | 0 | 0 | 0 | 4 | 0 |
| Consumption | 4 | 0 | 3 | 22 | 34 |
| Totals | 38 | 39 | 79 | 144 | 69 |

*Contagious Diseases in Relation to Public Schools.*

| | *Reported* | | *Deaths* | |
|---|---|---|---|---|
| | D. | S. F. | D. | S. F. |
| Public School No. 10 | .. | 1 | .. | .. |
| Public School No. 12 | .. | 1 | .. | .. |
| Public School No. 17 | .. | 1 | .. | .. |
| Public School No. 21 | 1 | 1 | .. | .. |
| St. Patrick's School | 3 | 1 | .. | .. |
| St. Joseph's Academy | .. | 1 | .. | .. |

Number of days quarantine for diphtheria:
Longest..... 45 Shortest..... 4 Average..... 23 5/8
Number of days quarantine for scarlet fever:
Longest..... 40 Shortest..... 28 Average..... 33 4/5
Fumigations:
Houses..... 20 Rooms..... 87

| | |
|---|---|
| Cases of diphtheria reported | 5 |
| Cases of diphtheria in which antitoxin was used | 4 |
| Cases of diphtheria in which antitoxin was not used | 1 |
| Deaths after use of antitoxin | 0 |

## Bender Report on Tuberculosis.

| | |
|---|---|
| Positive | 9 |
| Negative | 22 |
| Failed | 1 |
| Total | 32 |

### Tuberculosis.

| | | | |
|---|---|---|---|
| Living cases on record January 1, 1909 | | | 248 |
| Reported during January, 1909: | | | |
| By telephone | 0 | | |
| By Bender | 8 | | |
| By card | 19 | | |
| | | 27 | |
| Dead cases reported by certificate | | 10 | |
| | | | 37 |
| | | | 285 |
| Dead cases previously reported | | 7 | |
| Dead cases not previously reported | | 10 | |
| | | | 17 |
| Living cases on record February 1, 1909 | | | 268 |

### Total Tuberculosis Death Certifcates Filed.

| | |
|---|---|
| January, 1908 | 17 |

### Bureau of Pathology.

*Bender Laboratory Report on Diphtheria.*

| | 1905 | 1906 | 1907 | 1908 | 1909 |
|---|---|---|---|---|---|
| Initial positive | 6 | 4 | 34 | 25 | 6 |
| Initial negative | 5 | 35 | 70 | 82 | 71 |
| Release positive | 23 | 3 | 41 | 19 | 27 |
| Release negative | 7 | 9 | 43 | 55 | 28 |
| Failed | 0 | 0 | 27 | 2 | 5 |
| Totals | 41 | 51 | 215 | 183 | 137 |
| Examination for tuberculosis: | | | | | |
| Initial positive | 2 | 1 | 5 | 5 | 7 |
| Initial negative | 2 | 1 | 2 | 22 | 20 |

### Bureau of Markets and Milk.

| | |
|---|---|
| Market re-inspections | 139 |
| Public market inspections | 20 |
| Fish markets inspected | 13 |
| Milk wagons and milk in clean condition | 28 |
| Wagons and milk in unclean condition | 0 |
| Butter fats below 3% | 1 |
| Butter fats from 3 to 3.5% | 7 |
| Butter fats from 3.5 to 4% | 16 |
| Butter fats over 4% | 4 |
| Solids below 12% | 6 |
| Solids from 12 to 12.5% | 8 |
| Solids from 12.5 to 13% | 5 |
| Solids over 13% | 9 |

## Bureau of Milk.

| No. | Specific Gravity | Butter Fats: Under 3% | 3 to 3.5% | 3.5 to 4% | Over 4% | Solids: Under 12½% | 12 to 12.5% | 12.5 to 13% | Over 13% |
|---|---|---|---|---|---|---|---|---|---|
| 3..... | 31.6 | .. | .. | 1 | .. | .. | 1 | .. | .. |
| 11..... | 32.6 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 20..... | 31.6 | .. | 1 | .. | .. | .. | 1 | .. | .. |
| 27..... | 32.6 | .. | .. | 1 | .. | .. | .. | 1 | .. |
| 47..... | 33.7 | .. | .. | .. | 1 | .. | .. | .. | 1 |
| 51..... | 29.4 | .. | 1 | .. | .. | 1 | .. | .. | .. |
| 74..... | 33.7 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 80..... | 31.6 | .. | .. | 1 | .. | .. | .. | 1 | .. |
| 95..... | 32.6 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 96..... | 32.6 | .. | 1 | .. | .. | 1 | .. | .. | .. |
| 109..... | 31.6 | .. | 1 | .. | .. | 1 | .. | .. | .. |
| 112..... | 32.4 | .. | 1 | .. | .. | 1 | .. | .. | .. |
| 116..... | 33.6 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 119..... | 30.4 | .. | 1 | .. | .. | 1 | .. | .. | .. |
| 128..... | 32.4 | .. | .. | 1 | .. | .. | .. | 1 | .. |
| 131..... | 33.7 | .. | .. | .. | 1 | .. | .. | .. | 1 |
| 144..... | 31.4 | 1 | .. | .. | .. | 1 | .. | .. | .. |
| 147..... | 32.7 | .. | 1 | .. | . | .. | 1 | .. | .. |
| 159..... | 32.6 | .. | .. | .. | 1 | .. | .. | .. | 1 |
| 163..... | 31.4 | .. | .. | 1 | .. | .. | 1 | .. | .. |
| 165..... | 29.6 | .. | .. | 1 | .. | .. | 1 | .. | .. |
| 166..... | 32.4 | .. | .. | 1 | .. | .. | .. | 1 | .. |
| 169..... | 33.7 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 182..... | 33.7 | .. | .. | .. | 1 | .. | .. | .. | 1 |
| 184..... | 30.6 | .. | .. | 1 | .. | .. | 1 | .. | .. |
| 192..... | 32.7 | .. | .. | 1 | .. | .. | .. | 1 | .. |
| 194..... | 31.6 | .. | .. | 1 | .. | .. | 1 | .. | .. |
| 357..... | 31.4 | .. | .. | 1 | .. | .. | 1 | .. | .. |

## Miscellaneous.

| | |
|---|---|
| Mercantile certificates issued to children | 33 |
| Factory certificates issued to children | 7 |
| Children's birth records on file | 40 |
| Number of written complaints of nuisances | 14 |
| Privy vaults | 0 |
| Plumbing | 7 |
| Other miscellaneous complaints | 7 |
| Total number of dead animals removed | 359 |
| Cases assigned to health physicians | 84 |
| Calls made | 300 |

# Society Proceedings

## Otsego County Medical Society.

At the annual meeting held at Oneonta, December 8, 1908, Dr. Henry W. Boorn of Schenevus, read a paper on Rare Surgical Operations. After considering the subject in a general way, he reported two interesting cases. A synopsis of the reports is only given. The first was an occlusion of the vagina, at confinement. The patient was twenty-one years old and a prima para. The condition was discovered soon after labor commenced. He waited to see if the expulsive pains would not overcome the adhesions. They did not. The walls of the vagina were separated by dissection. After cutting to the depth of one inch and a half the head of the child at once engaged in the reopened vaginal canal and she was soon delivered of a healthy male child. The hemorrhage from the dissected surfaces was readily controlled. The parts were thoroughly cleansed and folds of iodoform gauze were placed in the vagina to prevent the walls adhering again. The case soon recovered without any untoward complications. This operation occurred eight years ago. This woman has had four children since them. The husband and wife claimed there was nothing unnatural about her condition prior to her pregnancy.

Evidently the cause of the occlusion was either a specific or traumatic inflammation, most likely the former. The cicatrix was as firm as the surrounding tissues. The woman could not have been delivered of her child without an operation.

The other case was a man sixty-five years old with epithelioma of the penis. An uncle died with this disease when about the same age of this patient. In the uncle's case the disease extended to and involved the pubes. When the patient was first seen he was weakened, emaciated and his general appearance showed he had some malignant disease. The glans penis were involved and things indicated he would go the same as the uncle. He finally consented to an operation. He was chloroformed and a rubber bandage was placed around the penis next to the pubes. Instead of removing the organ with one stroke of the knife, it was done carefully, cutting down to the urethra, then dissecting the tissues from the urethra for one-eighth of an inch when it was cut off. This part of the urethra was slit longitudinally in four different places, and the skin and tissues were drawn over the end and sewed to the free end of the urethra thereby forming an artificial meatus. This process was a success. The case recovered without any stricture or unfavorable symptoms. He was put on tonics and arsenical preparations. It is now eight years since he was operated on and he is now a healthy, vigorous farmer.

A Successful Treatment of Some Obstinate Forms of Skin Diseases.—Dr. D. B. Manchester of Oneonta, N. Y., in a short paper on this subject, spoke of the severer and more obstinate forms of acne, rosacea, eczema, psoriasis and epithelioma, mentioning a number of cases where treatment by the X-Ray had been successful in his experience, after failure for years by other methods. He mentioned particu-

larly a case of pustular acne of twenty years' standing, and two patients with an especially aggravated condition of acne rosacea of seven or eight years' duration, each cured permanently by the X-Ray treatment.

In epitheliomata, treated in this way, there is little or no scar, and thus the face is not left disfigured.

He spoke favorably of the X-Ray in nearly all forms of skin disease, and was very positive in his belief that it was more nearly a specific in these severe types of forms especially mentioned than any and all other kinds of treatment together.

He alluded to the great mental distress frequently occasioned by these unsightly facial skin diseases, and thought it the duty of the profession to particularly urge this form of treatment to those patients who had failed to obtain a cure by the ordinary means.

In closing he stated that the preponderance of opinion among those who had personal practical experience in the treatment of skin diseases by the X-Ray was that it was in the highest degree efficient.

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# Medical News

**Edited by Arthur J. Bedell, M. D.**

THE ALBANY GUILD FOR THE CARE OF THE SICK—DEPARTMENT OF VISITING NURSING—STATISTICS FOR JANUARY, 1909. Number of new cases, 186; *classified as follows:* Dispensary patients receiving home care, 27; district cases reported by health physicians, 15; charity cases reported by other physicians, 68; moderate income patients, 76; old cases still under treatment, 83; total number of cases under nursing care during the month, 269. *Classification of diseases for the new cases:* Medical, 68; surgical, 14; gynecological, 2; obstetrical under professional care, mothers, 50; infants, 44; eye and ear, 4; skin, 2; throat and nose, 0; dental, 2; infectious diseases in the medical list, 13; removed to hospital, 5; deaths, 5.

*Special Obstetrical Department*—Number of obstetricians in charge of cases, 1; medical students in attendance, 2; guild nurses in attendance, 5; patients, 2; visits by head obstetricians, 0; visits by attending obstetricians, 1; visits by students, 10; visits by nurses, 19; total number of visits for this department, 30.

*Visits of Guild Nurses* (all departments): Number of visits with nursing treatment, 1,275; for professional supervision of convalescents, 452; total number of visits, 1,771; cases reported to the Guild by four health physicians and thirty-five other physicians; graduate nurses seven, and pupil nurses five on duty; two dentists.

*Report of Nurse's Work at Dispensary for January,* 1909.—Number of nurse's visits, 49, averaging 2½ hours each; number old patients, 462; number new patients, 119; *divided in clinics as follows:* Eye and ear, 9 clinics with 80 patients; children, 13 clinics with 61 patients; medical, 13 clinics with 65 patients; lungs, 13 clinics with 101 patients; surgical, 12 clinics with 83 patients; nose and throat, 8 clinics with 62 patients;

gynecological, 8 clinics with 39 patients; skin, 8 clinics with 80 patients; nervous, 4 clinics with 13 patients; stomach, 3 clinics with 10 patients; dental, 1 clinic with 1 patient.

The American Society for the Study of Alcohol and Other Narcotics will hold a meeting at Washington, D. C., March 17th, 18th and 19th, in the afternoons and evenings, for the presentation and discussion of papers on the various phases of the alcoholic problem.

This Society was organized in 1870 and was the first medical association to take up the study of alcohol and the diseases following its use. The present meeting is a response to an invitation from leading men at the capitol, to present to the profession and public, some scientific and authoritative conclusions concerning the alcoholic problem, based on facts of laboratory and clinical research, and entirely from a scientific point of view.

Over thirty papers on different phases of the subject have been promised and many of them from the great leaders of the medical profession. Physicians and all interested are very cordially invited to be present. For programmes and particulars address, Dr. T. D. Crothers, Secretary, Hartford, Conn.

Albany Hospital Officers.—The Board of Governors of the Albany Hospital have re-elected the old officers of the hospital, as follows: President, J. Townsend Lansing; vice-president, Charles Gibson; secretary, Frederick Tillinghast; treasurer, A. Page Smith; treasurer endowment fund, Dudley Olcott; executive committee, J. Townsend Lansing, Charles Gibson, Dudley Olcott, I. D. F. Lansing, Dr. Albert Vander Veer. David A. Thompson, who was elected a governor at the last election, met with the board. Mayor Henry F. Snyder, who is a governor, *ex officio,* also met with the board. The law committee was named as follows: Albert Hessberg, A. Page Smith and David A. Thompson.

The American Hospital Association has sent out a circular asking all members to assist in having the following amendment made to Paragraph 638 of the present tariff act.

No. 638. Philosophical and scientific apparatus, utensils, instruments, and preparations, including bottles and boxes containing the same specially imported in good faith for the use and by order of any society or institution incorporated or established solely for religious, philosophical, educational, scientific, or literary purposes, or for the encouragement of the fine arts, or for the use or by the order of any college, academy, school or seminary of learning in the United States, or any State or public library and not for sale, and all medical and surgical instruments, appliances, and apparatus specially imported in good faith for the use and by order of any incorporated hospital, asylum or other institution rendering medical or surgical aid to the public or any portion thereof free of charge, and whose expenses are borne wholly or in part by public funds or by private subscription, said articles to remain the permanent property

of such hospital, asylum or other institution, subject to such regulations as the secretary of the treasury shall prescribe.

Please write to your United States Senators or Representatives at once, and have your trustees do the same.

Tuberculosis Show Ends in Cohoes.—The tuberculosis exhibit in the Cohoes Armory was brought to a close on February 9th by a general public meeting. Dr. J. H. Mitchell lectured as did several other prominent Cohoes and out of town speakers. Dr. Prest of Waterford and Dr. J. L. Archambault spoke on February 8th.

Albany Hospital 1908 Reports.—The annual report of the Albany Hospital has recently appeared showing the total number of house cases for the year as 3,238, operations as 1,533.

Pathologist reports 1,600 examinations. Details of diagnosis, treatments and results are shown as heretofore.

The most gratifying feature of the year has been the complete removal of an indebtedness of $45,000. This sum having been received without any special plea or entertainment. The whole volume is gotten up in its usual attractive, concise form.

Vaccination.—The State Department of Health has recently issued a forty-page illustrated pamphlet, entitled:

"Vaccination—What it is; What it does; What its claims are on the People." This pamphlet was written by F. C. Curtis, M. D., Consulting Dermatologist of the State Department of Health, and has received commendatory notice from editors of medical journals and sanitarians throughout the country. Its scope can be judged from the following section headings: "The Diseases which Vaccination Controls;" "Early Protective Measures;" "How to Know Smallpox;" "How is Smallpox Contracted;" "The Prevailing Type of Smallpox;" "How Vaccination Came About;" "What is Vaccination;" "The Technique and Care of Vaccination;" "The Source of Vaccine Virus;" "Efficacy of Vaccination;" "Present Day Purity of Vaccine Virus;" "How Long is Vaccination Protective;" "Contra-Indications to the Performance of Vaccination;" "Complications and Dangers of Vaccination;" "The State Laws Requiring Vaccination;" "Opposition to Vaccination;" and the "Claims of Vaccination on the People."

A four-page folder on the "Care of Vaccination" has also been issued.

It is hoped that the circulation of these pamphlets and folders will aid to combat the prejudice against vaccination which exists among so many people, and promote the existence of wide-spread immunity against smallpox throughout the state.

The American Journal of Surgery announces that Dr. James P. Warbasse, formerly editor of the *New York State Medical Journal*, has joined its editorial staff.

The Schenectady Clinical Society is an active body of medical men that meet every week at the home of the different members who are: Drs.

Duryee, Fay, Betts, Towne, White, Bliss, Clowe, Vander Bogert, Scott, Pearson, Stone, Gould, Collie, Cass, Hughes and L. Faust.

New York State Charities Aid Association.—The annual meeting of this association was held in Albany, February 2nd. Hon. Joseph H. Choate presided as president of the association and made an address at the opening of the evening session, which was held in the Assembly Chamber. Gov. Hughes spoke on the "Co-operation of Private and Public Agencies in Preventive Philanthropy." Secretary Homer Folks spoke on "What the State Charities Aid Association Is, and What It Stands For." Charles F. McKennas' subject was "Home Finding." Prof. Franklin H. Briggs, considered the advantages of the cottage system as practiced at Industry. Judge Ben B. Lindsey dwelt upon "Some causes of Juvenile Delinquency." In the evening papers were presented as follows: Dr. F. Park Lewis discussed "Prevention of Blindness." Dr. Albert Warren Ferris spoke of "Avoidable Causes of Insanity." Dr. Livingston Farrand, secretary of the National Association for the Study and Prevention of Tuberculosis, emphasized the need of adequate hospital accommodations for both the advanced and hopeless cases of tuberculosis and the incipient and curable cases.

Personals.—Dr. Thomas Wilson (A. M. C. '74) of Hudson, N. Y., is spending the winter in California.

—Dr. W. G. Macdonald (A. M. C. '87) was recently reappointed by Gov. Hughes as trustee of the Raybrook Tuberculosis Sanatarium.

—Dr. A. B. Van Loon (A. M. C. '91) of Albany was recently elected president of the New York Homeopathic Medical Society.

—Dr. John W. Burns (A. M. C. '01) was on February 8th reappointed Health Officer of the City of Watervliet for a term of two years.

—Dr. Gerald Griffin (A. M. C. '01) of Albany is now studying at Johns Hopkins University, Baltimore, Md.

—Dr. M. J. Cornthwaite (A. M. C. '05) has moved from Schenectady to Ballston, N. Y.

—Dr. Clinton B. Hawn (A. M. C. '06) after a year as resident physician in Ellis Hospital, Schenectady, and a year as one of the laboratory assistants in pathology and bacteriology, has recently opened his office at 346 State street, Albany, N. Y.

—Dr. Walter T. Diver (A. M. C. '07) has started practice at 1915 5th avenue, Troy, N. Y., after having served as resident physician in the Troy Hospital for one year.

Dr. C. B. Phillips (A. M. C. '08) is now practicing at 163 Market street, Amsterdam, N. Y. Dr. Phillips has had entire charge of the smallpox cases during the recent epidemic, having been appointed by the city to look after them.

—Dr. Arthur T. Laird has in conjunction with his Madison avenue office consulting hours at 346 State street, Albany, N. Y.

Married—Dr. E. N. Mears (A. M. C. '95) of Albany, N. Y., and Miss

Mary Hollister, a nurse of this city, were married February 11, 1909, at Pittsfield, Mass.

—Dr. Herbert Bowen Reece (A. M. C. '05) and Mrs. Mabel Mack were married in Brooklyn, on November 30, 1908.

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Died—Dr. Charles H. Roberts (A. M. C. '46) died February 12, 1909, at his home Cedarglen, near Poughkeepsie, N. Y., aged 83.

—Dr. George B. Murray (A. M. C. '73) of Sandy Hill, N. Y., died February 10, 1909, aged 65.

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# Current Medical Literature

## REVIEWS AND NOTICES OF BOOKS

*The Ready-Reference Handbook of Diseases of the Skin.* By George Thomas Jackson, M. D., Chief of Clinic and Instructor in Dermatology, College of Physicians and Surgeons, New York. Sixth edition. 12 mo. 737 pages, with 99 engravings and 4 plates, in colors, and monochrome. Cloth, $3.00 net. Lea & Febiger, Publishers, Philadelphia and New York, 1908.

In the preparation of this new edition the subject matter has been carefully revised and much new matter incorporated. New articles have been added upon black tongue, dermatitis verrucosa or vegetans, keratosis follicularis contagiosa, keratosis senilis, lichen obtusus, melung, pseudopelade, and sporotrichosis hypodermica. The sections on pathology have been revised and new ones added. Otherwise the book is much the same as in former editions.

Part one consists of general considerations on the anatomy and physiology of the skin, on diagnosis, therapeutic notes, classification and nomenclature. Then follows the main portion of the work, a consideration of the diseases of the skin arranged alphabetically. This arrangement, while convenient for reference, is perhaps of questionable value in other respects, especially as it begs the entire question of classification of skin diseases.

Many typographical errors in the text can be found. The illustrations are only fair at the best and many are very poor. C. K. W., JR.

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*Pulmonary Tuberculosis and All Complications.* By Sherman G. Bonney, M. D., Professor of Medicine, Denver and Gross College of Medicine, Denver. Octavo of 778 pages, with 189 original illustrations, including 20 in colors and 60 x-ray photographs. Philadelphia and London, W. B. Saunders Company, 1908. Cloth, $7.00 net; half morocco, $8.50 net.

This book gives a comprehensive view of the disease and in a very

practical way. The author states that he has written particularly for the benefit of the general practitioner and in this aim we believe he has been successful.

The first part of the text deals with the etiology, bacteriology and pathology of the disease. It is particularly clear and as brief as the immense amount of ground to be covered will allow. It is not encumbered with too many references.

Parts II to V are devoted to symptomatology, physical signs, prognosis and complications. The consideration of these topics is full and clear and the text is well illustrated. The author's long experience with the clinical aspects of tuberculosis has enabled him to present the subject in a very thorough way.

The last portion of the book deals with the treatment and includes not only the hygienic and medical treatment of the patients but also discusses the question from the public health and sociological standpoints.

H. W. C.

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*Diseases of the Skin and the Eruptive Fevers.* By JAY FRANK SCHAMBERG, M. D., Professor of Dermatology and Infectious Eruptive Diseases in the Philadelphia Polyclinic and College for Graduates in Medicine. Octavo of 534 pages, illustrated. Philadelphia and London, W. B. Saunders Company, 1908. Cloth, $3.00 net.

"The study of dermatology in its broadest sense embraces the consideration of all morbid processes that are characterized by cutaneous manifestations. * * * The specialist in skin diseases should be skilled in the diagnosis not only of the ordinary dermatoses, but of the rashes of the various eruptive fevers. The two classes of affections frequently resemble each other to such a degree as to require for their differentiation a broad experience in both. The striking manner in which syphilis may simulate smallpox is well known. The eruption of syphilis is, properly considered, no more entitled to be included among skin diseases than is that of smallpox; the former constitutes the most conspicuous symptom of a chronic infectious process, while the exanthem of variola represents the most striking feature of an acute infectious process.

"In the present volume the exanthemata are treated in a separate chapter, and, owing to the importance attaching to their diagnosis, are given greater space than is usually accorded to them in books on skin diseases. The general symptoms are described briefly, but all that relates to the skin manifestations is exhaustively treated. In addition to a consideration of the diseases ordinarily included among the exanthemata, there are described the usual and the accidental eruptions occurring in the course of such diseases as typhoid fever, typhus fever, epidemic cerebro-spinal meningitis, influenza, dengue, miliary fever, angina, and tonsilitis.

"The part devoted to the diseases of the skin is designed to present the subject in a brief and practical manner: special attention is devoted to symptomatology, diagnosis, and treatment."

The above extensive quotation from the author's preface well shows the

spirit in which the work was conceived, and the general arrangement of the book.

The first chapter is a resumé of the anatomy and physiology of the skin and of the general symptomatology of skin diseases. There follows the consideration of the various skin diseases arranged alphabetically under the following classes: Anemias, Hyperemias, Inflammations (by far the largest group), Hemorrhages, Hypertrophies, Atrophies, New Growths, Anomalies of Secretions of Glands, Neuroses, Diseases of Mucous Membranes. A short chapter on Actinotherapy and Radiotherapy is found, following which is the chapter on the Acute Eruptive Fevers. An excellent index is appended.

The text is admirable, full without being verbose, varying in amount according to the importance and frequency of the disease described. Many excellent formulas are found. The illustrations, so important in a book on dermatology, are to be especially commended; they are practically all reproductions of case photographs, are very clear and distinct, and well show the various lesions. The book is not as large as some of the standard works on the subject but is to be very highly commended, and contains all details necessary for any but those devoting themselves to dermatology as a specialty. C. K. W., JR.

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*Gynecology and Abdominal Surgery.* In two large octavos. Edited by HOWARD A. KELLY, M. D., Professor of Gynecology Surgery at Johns Hopkins University; and CHARLES P. NOBLE, M. D., Clinical Professor of Gynecology at the Woman's Medical College, Philadelphia. Large octavo volume of 862 pages, with 475 original illustrations by Mr. HERMANN BECKER and Mr. MAX BRODEL. Philadelphia and London, W. B. Saunders Company, 1908. Per volume: Cloth, $8.00 net; half morocco, $9.50 net.

A review of Volume I may be found in the February number of this Journal for 1908.

The greater part of the present volume is devoted to Abdominal Surgery. As in the previous volume each article is a monograph on the subject presented.

The contents of Volume II are as follows: Complications Following Operations, by G. Brown Miller; Cesarean Section and Porro-Cesarean Section, by J. F. W. Ross; Operations During Pregnancy, by Richard C. Norris; The Operative Treatment of Sepsis in the Child-bearing Period, by Barton C. Hirst; Extra-uterine Pregnancy, by J. W. Williams; Diseases of the Female Breast, by J. C. Bloodgood; Operations upon the Gall-bladder, Bile-ducts and Liver, by A. J. Ochsner; Operations upon the Stomach, by B. G. A. Moynihan; Pyloroplasty, by J. M. T. Finney; Intestinal Surgery, by John B. Murphy; Operations for Diseases of the Vermiform Appendix, by H. A. Kelly and E. Hurdon; Surgery of the Pancreas, by E. L. Opie; Surgical Treatment of Diseases of the Pancreas, by S. H. Watts; Operations upon the Spleen, by H. A. Kelly; Tuberculosis of the Peritoneum, by G. B. Johnston; Penetrating Wounds

of the Abdomen, by F. W. McRae; Hernia, by G. L. Hunner; Operations for Inguinal Hernia in Abdominal and Pelvic Surgery, by B. M. Anspach; The Surgery of the Ureter, by H. A. Kelly; Surgery of the Kidney, by C. P. Noble and B. M. Anspach.

The table of contents with the names of the contributors is in itself a review of the work and a sufficient guarantee of its merits. The present volume is uniform with the first one, the illustrations and book-making being of the best. J. A. S.

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*Surgery: Its Principles and Practice.* In five volumes. By 66 eminent Surgeons. Edited by W. W. Keen, M. D., LL. D., Hon. F. R. C. S., Eng. and Edin., Emeritus Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia. Volume IV. Octavo of 1,194 pages, with 562 text illustrations and 9 colored plates. Philadelphia and London, W. B. Saunders Company, 1908. Per volume: Cloth, $7.00 net; half morocco, $8.00 net.

This the latest volume of this most excellent work maintains the high standard of excellence set by the three preceding volumes.

It opens with a splendid chapter on hernia by Coley, in which a comprehensive presentation of the different phases of this subject is given. Surgery of the rectum and anus is the subject of the second chapter. A brief chapter on the urine in relation to surgical measures by Edsall, is of distinct merit because it calls attention to certain important facts often overlooked by the surgeon in his enthusiasm to operate.

Surgery of the kidneys, the ureter and the suprarenal gland is the first of a series of six chapters on the surgery of the genito urinary tract, the other chapters being surgery of the bladder, stone in the bladder, surgery of the prostate, surgery of the penis and uretha and surgery of the scrotum, testicle, spermatic cord and seminal vesicles.

These chapters together contain most of what is of practical value in this important department, although in these chapters as in many of the others the writer's special preference in the matter of operation and treatment are given the chief consideration and other methods are oftentimes not as adequately presented as might be desired.

Surgery of the intestines, the omentum and mesentery is the subject of the next chapter and this is followed by a chapter by Murphy on the surgery of the appendix vermiformis, the latter is one of the most meritorious chapters in the volume and while not elaborate, contains all the essential facts about this important subject.

Surgery of the ear and surgery of the eye are excellent chapters but of more interest to the specialist than to the surgeon.

Military and naval surgery are the subjects of interesting chapters and written by Dr. O'Reilly and Dr. Rixey, they naturally contain the latest ideas relating to surgery done under the conditions presented by the army and navy.

Tropical surgery in view of our recent acquisitions is also an important chapter and deals with the surgical aspects of the tropical diseases.

The volume closes with a chapter on the influence of the race, sex and age in surgical operations, all of which are factors in many instances of no small importance.

The volume contains 1,194 pages of subject matter with 582 illustrations, twenty-two of which are in color.

The bookmaking is quite up to the standard of the other volumes of the system and is as good as can be produced.

All in all this volume is to be commended not only for its intrinsic merit but also because of its relationship to those which have already appeared as well as to those shortly to follow. A. W. E.

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## MEDICINE

**Edited by Samuel B. Ward, M. D., and Charles K. Winne, Jr., M. D.**

*Tar and Asphalt Workers' Epithelioma and Chimney Sweepers' Cancer.* THOMAS OLIVER. *British Medical Journal, August 22,* 1908.

The author states that in England the association of soot and cancer has long been recognized. He states that coal as such is not dangerous, but the products of its combustion and distillation are. This is proved by the fact that coal miners are not particularly liable to dermatitis or epithelioma and according to the author, chimney sweepers' cancer or epithelioma of the scrotum and epithelioma upon the hands of gardeners who are employed in sprinkling soot upon plants is too well known to deserve more than mere mention.

Coal oil—the author reports three cases in workers engaged in the manufacture of lubricating greases which are made from oil distilled from coal. Tar and resin are added to the oil, mixing is done while hot and the workmen are exposed through splashing. The result is a chronic dermatitis which may be followed by carcinoma. Two of the three cases he reports are in young men. Two of the cases ended in metastases.

Under asphalt he reports two cases of epithelioma of the scrotum. The work with these men consisted in mixing slag, tar and boiling pitch. In the process the hands become besmeared and the trousers saturated. Both cases showed metastases to the groin. These two cases were in men aged forty-eight and fifty-six.

Under soot he reports a case of a man fifty-eight years old with a cancer of the scrotum of twenty-six years' duration. The tumor had been removed twenty-six years ago. At the time of writing there was a recurrence with metastases to groin. The author considers that the inflammation produced by scratching because of the irritation is one of the factors in the production of the chronic dermatitis. He states that the disease is most common in careless workmen. The significant features are chronic dermatitis followed by keratosis which finally becomes the seat of malignant growth.

The sequence of events is very similar to those leading to carcinoma in X-Ray workers.

*A Case of Congenital Malformation of the Heart with Paroxysmal Cyanosis. (Un Cas de Malformation Congenitale du Coeur avec Cyanose Paroxysmique.)*

D'Espine and H. Mallet. *Revue de Medecine, Vol. 28, No. 11, November, 1908.*

In 1904 Variot called attention to a variety of congenital cyanosis characterized by the fact that it occurred in paroxysms separated by periods of varying length in which the color of the skin assumed nearly if not quite its normal shade. This cyanosis, for which the authors proposed the name "Paroxysmal congenital cyanosis" was proved by them to be due to certain definite cardiac malformations: an hypertrophy of the right ventricle, a communication between the right ventricle and the aorta, a muscular stenosis of the infundibulum of the pulmonary artery, and an interventricular foramen. The writers report a similar case characterized by similar attacks of cyanosis but showing a different cardiac anomaly.

The patient was an infant of five months, a foundling, small but well formed. She presented on admission to the hospital, January 30, a medium grade of cyanosis; her face was pale but the border of the lips, the tongue, the papebral conjunctivae, the hands and especially the feet presented a very marked violet color. The respirations were quiet. There were well-marked hippocratic fingers, less marked deformities of the toes. There was a well-marked precordial bulging; a slight palpable shock was present over the heart, but no thrill. The area of cardiac dullness was increased, especially laterally. On auscultation, the sounds were regular, strong and sharp, the second sound was not accentuated. The first sound was accompanied by a soft, inconstant, very variable murmur, which was thought to be perhaps extracardial in origin, for it was not propagated outward and varied with the position of the child. The murmurs were not heard in the back. While the child remained quiet the respirations were also quiet, but upon the slightest exertion, or if the child cried, they became accelerated and dyspnoea appeared. There were sonorous and sibilant rales throughout both lungs. Except for a slight edema of the feet the examination was otherwise negative.

During the next two months the cyanosis gradually left, only a very faint bluish tint remaining about the lips; slight edema of the eye-lids appeared. At this time the child had a fright; she emitted loud cries and became so cyanosed as to appear black; the respirations were very deep with marked dyspnoea, the heart became very rapid. This attack lasted about two hours when the child became again quiet and resumed her normal color. About ten days later the color became somewhat deeper and a marked edema of the face appeared. At this time also a well-marked but soft and constant murmur was discovered, loudest at the base on the left. The murmur could not be heard in the back. During the next few days the child was restless and cried a great deal. "Each time that she cried, she became violet, especially about the lips and in the inferior extremities, her hands were almost black." During the

next two months these periods of restlessness and coincident cyanosis alternated with periods of calm and fairly normal color. The last clinical note reads as follows: "June 3, the child, who for the last few days has become very restless and has had numerous attacks of cyanosis, died in an attack more intense than the preceding ones without having presented any particular symptoms, at the age of eleven months and a half."

An abstract of so much of the autopsy notes as refer to the heart is as follows: The lungs were markedly retracted and almost the entire space beneath the costal cartilages was occupied by the dilated heart. The heart was greatly increased in volume, especially the right ventricle which forms the apex of the organ. The musculature of the right ventricle was firmer than that of the left; the right auricle was hypertrophied and dilated. The mitral and tricuspid orifices were normal. The aortic valves were slightly incompetent and the aorta was much larger than the pulmonary artery. In the arch of the aorta there was seen the large opening of the Ductus arteriosus (Duct of Botallo), communicating with the pulmonary artery. An opening existed between the right ventricle and the aorta, but the orifice of the pulmonary artery was entirely obliterated. There was a free passage from the left ventricle into the aorta, as it overrode the two chambers, but the opening from the right ventricle was much larger than that from the left. From this circumstance the aorta was somewhat displaced to the right of the pulmonary artery. The interventricular septum was thick, but presented a slight defect just below the semilunar valves. These valves were large, the sinuses of Valsava were somewhat dilated an dthe entire aorta and its main branches increased in size. The ductus arteriosus was large and freely communicated with both the aorta and the pulmonary artery. The occlusion of the pulmonary orifice showed the outlines of the valves.

The writers compare their case with the other reported cases of paroxysmal congenital cyanosis. It agrees with the others exactly, except for the fact that it was never entirely free from at least a slight degree of cyanosis. This cyanosis they point out was very evidently due to the mixture of arterial and venous blood which was at all times present in the aorta and other vessels on account of the double communication of the aorta with the two ventricles, especially as the opening from the right was larger than the one from the left. They explain the paroxysms by the sequence of the following influences: The pulmonary atresia led to the hypertrophy of the right ventricle which led to a predominance of the venous blood in the mixture of blood which resulted from the anatomical conditions present. This in turn led to a latent cyanosis which caused the hippocratic fingers and the bluish tint to the lips. The paroxysms were brought about according to their view by any and all causes which produced an insufficiency of the right ventricle with dilatation. Especially as the circulation was already impaired and in a condition of instability. This hypothesis would also explain the other cardiac and circulatory disturbances present, such as the edema, the increased area of dullness, the precordial bulging, and the dilatation and

hypertrophy of the auricle. They are unable to explain the inconstant heart murmur unless by assuming that it was due to some extracardiac lesion.

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*Rheumatic Myocarditis.*

CAREY COOMBS. *The Quarterly Journal of Medicine, Vol. 2, No. 5, October,* 1908.

The purpose of the writer, as expressed in the opening paragraphs, is to increase the general appreciation of the importance, both pathological and clinical, of lesions of the myocardium in association with rheumatic attacks (and chorea, which he regards as an evidence of rheumatism). His arguments are applied particularly to rheumatism in childhood, complicated by cardiac involvement, but somewhat also to the same conditions in adult life.

The pathological study comprises an unusually careful examination by himself, of eight hearts, six of which were of children under sixteen, one of a girl of nineteen, and one of a youth of twenty-one. Reference is also made to the autopsy records of eighty-eight cases of non-suppurative carditis, fatal before the age of sixteen, drawn from the Bristol hospitals. The eight cases referred to were all of pancarditis with a history of a rheumatic attack.

Macroscopic appearances: (The condition of the muscle only is considered in this review, and is especially emphasized in the article of Coombs.) A very marked degree of hypertrophy and dilatation was noted in all the cases, involving particularly the ventricular walls. In two cases specifically mentioned, aged respectively seven and eight years, the hearts weighed eight and eleven ounces, or in one instance, more than, and in the other, nearly as much as that of a healthy adult male, ten ounces. In twenty autopsy reports of patients of an average age of eleven and one-half years dying of rheumatism or its effects, the average heart weight was nine and nine-tenths ounces. None of these patients had valvular or pericardial complications. The writer discusses the cause of this hypertrophy and dilatation, and concludes that it is due to the action of the rheumatic toxin on the myocardium directly. The naked eye appearances and consistence of the cardiac muscle was but little altered.

*Microscopic changes.*—All the cases examined showed definite microscopic lesions of varying degree and extent involving both the muscle cells and the interstitial tissue. The lesions of the parenchyma were degenerative rather than reactive, and therefore strictly speaking not inflammatory. In the connective tissue, however, certain reactive changes occurred which the writer considers pathognomonic of rheumatism. These lesions have been previously described by other observers. The writer's summary of the microscopical changes are as follows· 1. The parenchymatous cells are the seat of a fatty change, which is most

pronounced in the wall of the left ventricle, particularly in the papillary muscles and beneath the pericardium. No other important change has been noted in the cells themselves. 2. In the stroma, nodules are found consisting entirely of large cells, many of which are multinucleate, and which seem to be fibroblastic in nature. These nodules develop especially in the neighborhood of the arteries and arterioles; the left ventricle is far more affected than the right, particularly near the root of the aorta and the mitral ring, and at the apex near the interventricular septum. Few nodules are found in the septum itself, and the same applies to the papillary muscles. 3. Foci of leucocytosis occur. These are papillary, and are found especially in the papillary muscles. 4. Various arterial inflammations occur, especially a nodular periarteritis. Aortitis is generally present. 5. In hearts which have passed through a stage of active carditis certain cicatricial lesions of the myocardium remain to mark the site of previous nodules.

The writer next considers in detail the interpretation of the above changes and reaches the following conclusions, which to the reviewer are warranted from the evidence. 1. The nodules are inflammatory and probably represent a reaction on the part of the connective tissues at the actual point of infection. They appear to be characteristic of rheumatic as opposed to other forms of carditis, and changes histologically similar are seen in rheumatic endocarditis and pericarditis and subcutaneous fibroid nodes. Their close relation to the arteries is a further proof of the fact that in rheumatic carditis the heart is invaded through the coronary avenues. 2. The areas of leucocytosis represent edema due to passive venous congestion. 3. Toxemia accounts for, no doubt, the greater part of the fatty changes; but a similar change occurs as the result of chronic venous congestion and of hypertrophy, both of which exist in most cases of rheumatic carditis. 4. Ventricular dilatation is to be ascribed to muscular atony under the influence of toxemia. 5. The ventricular hypertrophy may also be due to the "direct" action of some toxin. There is some evidence to show that the poison produces this effect by inducing myocardial overaction. 6. The myocardial lesions occurring in rheumatic carditis are of so special a kind as to lend definite support to the conception of a specific rheumatic infection.

He takes issue with those who uphold the "attenuated pyemia" theory of rheumatism, and states his reasons in detail.

The influence of rheumatic myocarditis on the physical signs: His conclusions are based on the notes on ninety-two cases of rheumatic carditis in patients under sixteen years of age. He divides the cases into four classes: 1. Cases of general ventricular enlargement with evidence of mitral regurgitation. 2. Cases with evidence of pericarditis in addition to the previous signs. 3. Those with definite evidence of some valvular deformity, either aortic regurgitation or mitral stenosis. 4. Those with malignant endocarditis originating in rheumatic inflammations of the heart.

Of the ninety-two cases there were sixty-nine, or 75 per cent. which fell in the first class. The signs characterizing this group were as

follows. 1. A great increase in the area of both the cardiac impulse and dullness, with the point of maximum impulse carried out beyond the nipple line. This is obviously due to hypertrophy. 2. A systolic murmur at the apex, transmitted to the axilla, and if long and loud enough, perhaps accompanied by a systolic thrill. This insufficiency of the mitral valve is considered by the writer to be "relative" rather than due to any organic change in the valves, as the autopsies showed practically normal leaflets but a greatly dilated ring, admitting in one case the tips of four fingers. 3. Perhaps a murmur heard in early diastole, of the general nature of the murmur of mitral stenosis, but lacking the rattling and crescendo character of the latter, and often disappearing under the influence of rest; besides it has not the usual time of that murmur. This also the writer considers due to the dilatation, which would produce a relative stenosis at the ring, since with ventricular dilatation the capacity of the ventricle increases in greater ratio than the calibre of the opening. There was no actual stenosis present in any of the hearts at autopsy. 4. A diastolic shock in the third left space with an increase in the intensity of second pulmonic sound. This is due to an increase in the pulmonic pressure from its initial regurgitation and to the fact that the enlarged heart pushes the lung aside thus allowing the heart to approach nearer to the chest wall. 5. Frequently a reduplication of the second sound at the apex. This the writer thinks is due to delayed tension of the mitral cusps, as suggested by Lees, which is in some way connected with the fact that the myocardial changes are more marked in the left than in right ventricle.

The writer then considers the influence of myocarditis as the cause of death in these cases of rheumatic carditis. That it is the cause of the acute dilatation which so often occurs just before this event is, he thinks obvious. That it is also the cause of death in other cases he considers probable because in forty-two of the ninety-two cases the endocardium and pericardium showed no adequate cause for death, and all of them showed acute myocardial changes. He also quotes the statistics of Poynton, who showed that in eighty-six of one hundred fatal cases of rheumatic carditis there was evidence of fresh cardiac infection. Statistics of 121 fatal cases of chronic valvular disease are also given by decades, which show that of ninety-four dying between the ages of seventeen and fifty-six, thirty had acute cardiac infection superimposed upon the chronic process, most of which were due to early rheumatism. Of twenty-seven cases dying above the age of fifty-six, and therefore probably largely due to arterio sclerotic changes, only two showed such lesions. These facts while not conclusive, are at least very suggestive in support of his ideas concerning the importance of myocarditis as the cause of death in all cases, even chronic, of cardiac affections.

## PHYSIOLOGICAL CHEMISTRY

### Edited by Holmes C. Jackson, Ph. D.

*Concerning the Value of Salomon's Method for the Differential Diagnosis of Carcinoma of the Stomach. (Ueber den Wert der Methode H. Salomon's für die Differential diagnose des Magens Karzinoms.)*

J. Witte. *Zeitschrift für Klinische Medizin,* 1908, 56, 30–52.

In the year 1903 Salomon published a new method for the differential diagnosis of gastric carcinoma as follows. During the day the patient is fed on a fluid and protein free diet. During the evening the stomach is thoroughly washed out until the wash water shows perfectly clear and colorless. On the following morning the stomach is washed thoroughly by raising and lowering the funnel, with 400 cubic centimeters of physiological salt solution. The fluid obtained in this way was examined for protein material by Esbach reagent and for total nitrogen by the Kjeldahl method. Salomon believed that according to the analogy of other open surfaces of wounds, a serum was secreted in the case of carcinoma, the protein of which could be detected by suitable methods. The results of his cases showed that in benign tumors and other conditions, Esbach's test only showed a slight turbidity and the nitrogen by Kjeldahl amounted only to 0-16 milligram of nitrogen in 100 cubic centimeters wash water; while carcinomata gave a rapid and intense flocking out of the solution in Esbach's reaction and the nitrogen content equalled 10–70 milligrams. Many investigators took up the question and in all now the results of two hundred cases of gastric lesions have been published of which fifty were undoubted gastric carcinomata. Of the latter only a very small percentage showed negative results to Salomon's test. In some instances of the other lesions a high nitrogen content with a negative Esbach was present or vice versa. In general, however, the results seemed to substantiate the findings of the discoverer of the test. Witte made a careful examination of twenty-seven cases of gastric lesions of which eleven were carcinomata. He determined the motility of the stomach, tested for free hydrochloric and total acid, specific gravity, nitrogen and Esbach reaction of Salomon's wash fluid. He concludes that no differential diagnosis is possible from the reaction and specific gravity. As regards the nitrogen and Esbach's test his analysis of the cases is as follows:

1. Chronic gastritis with a profuse mucous secretion. Of six such cases all showed a nitrogen result of less than 13.3 milligrams and only a slight turbidity with Esbach's reagent. In one case complicated by a gastric succorrhœa somewhat higher results were observed. This was to be explained by the continual secretion of the gastric juice which carried with it into the lumen of the stomach masses of broken down epithelium which contained protein material and hence increased the nitrogen content.

2. Gastric ulcer. Six cases. In none of these cases did the nitrogen content exceed 20.3 milligrams, or the Esbach test show values more than 1/8 per Mille. It is important to note that even in those cases where

ulcers were present the nitrogen content of the wash water did not greatly exceed that found in chronic gastritis.

3. Gastric carcinoma. Two cases of the eleven examined gave results which lay below, the limit placed by Salomon for carcinomata. In one of these instances, however, Esbach's test showed a marked precipitation. The other nine cases exhibited a nitrogen content which was greater than 20 milligrams and hence added conclusive evidence of gastric carcinomata.

The author presents one case diagnosed as gastric ulcer which showed no clinical symptoms of carcinoma, but exhibited a positive Salomon reaction. The operation confirmed the accuracy of the latter result.

As a result of the investigations of these patients Witte concludes that Salomon's test offers a very favorable means of help in doubtful cases of gastric lesions and that if the results of both Esbach's test and the nitrogen content are considered, the diagnostic value is quite definite. He would limit, however, a diagnosis of malignant growths to those cases where the nitrogen content is greater than 25-30 milligrams of nitrogen and Esbach's reagent gives a definite flocculent precipitate.

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*Concerning the Reciprocal Action of the Glands of Internal Secretion. (Ueber die Wechselwirkungen der Drüsen mit innerer Sekretion.)*

Eppinger, Falta and Rudinger. *Zeitschrift für klinische Medicin,* 1908, *Vol.* 66, *p.* 1.

The experimental part of the work led to the following conclusions: The hunger metabolism of thyroidectomized animals amounts to only one-half of that of the normal. Fat or carohydrates decrease the nitrogen output of such animals very slightly if at all. The feeding of thyroid preparations causes the animal to return to the normal hunger protein metabolism. Under such conditions carbohydrates are able to spare the protein. Subcutaneous or intraperitoneal injection of adrenalin does not lead to a glycosuria in throidectomized animals even if they had been previously fed upon carbohydrates. The protein metabolism of hunger, however, is still further reduced; but upon the ingestion of iodothyrin, the metabolism increases and coincidently there appears the adrenalin glycosuria. In dogs with the pancreas removed, subcutaneous or intraperitoneal injection of adrenalin brings about an enormous increase in the dextrose and nitrogen elimination. The diabetes of a dog with both pancreas and thyroids removed is signalized by a much smaller increase of the protein metabolism in hunger than is the case when pancreas is alone removed. Based upon these results, the following laws of reciprocal relationship of the three tissues (thyroid, pancreas and chromaffine system) are advanced.

Thyroid and chromaffine system stand in reciprocal stimulative relationship, one with the other, but both act as inhibitory factors upon the pancreas. Diminution or excessive action of one gland leads to a relative over-production or insufficiency of secretion of the other. It is essential that one differentiates between the direct action which is to be ascribed to the internal secretion of the gland and the indirect action which results

from the disturbance of correlation with the other glands. By apancreatism, a disturbance of carbohydrate metabolism results from the absence of the internal secretion. As an effect of the removal of the inhibitory action upon the chromaffine system, there occurs an increased mobilization of carbohydrate by the adrenalin and an augmented protein and fat combustion by the secretion of unrestrained thyroid gland. The action of the injected adrenalin (considered as a hyperfunction of the chromaffine system) is explained first as a direct action causing disturbed carbohydrate utilization and second, as an indirect effect which stimulates the thyroid and caused increased protein catabolism, and also inhibits the pancreatic function setting up an altered combustion of carbohydrates and a resultant glycosuria. Removal of the thyroid results directly in a circumscribed protein metabolism and respiratory exchange. The indirect effects are a removal of the normal stimulus to the chromaffine system effecting a sluggish carbohydrate mobilization and a removal of the inhibition upon the pancreas. The best evidence of this rests upon the results of artificial adrenalin action in thyroidectomized animals.

The relations of the glands with internal secretions to the nervous system is extremely important. Löwi indicated that in apancreatism, a condition of increased irritability of the sympathetic system exists which shows itself in adrenalin mydriasis. The same condition is to be expected in hyperthroidism. In fact these authors were able to obtain mydriasis with adrenalin as the result of feeding thyroid glands to normal or athyroid animals. In athyroidism there exists on the other hand a decreased irritability of the sympathetic neurons, evidenced by the excessive diminution of the blood pressure raising action of adrenalin. With the normal animal the puncture of the floor of the fourth ventricle sets up a glycosuria and concomitant augmentation of protein decomposition. This is the same picture that appears following adrenalin application. In athyroid animals puncture does not lead to glycosuria. Here also there occurs in exact agreement with adrenalin injection, a combustion of carbohydrate which reduces the nitrogen metabolism. The puncture most probably occasions a discharge of the chromaffine system.

Langley has demonstrated an antagonism between sympathetic and autonomic nervous systems which shows itself in their action upon the peripheral organs, as well as in their reactivity to pharmacological agents. The authors incline to the view that a similar antagonism exists in the inner secretions. The chromaffine system is innervated by the sympathetic neurons and acts as a tone upon them. The thyroid is also predominatingly sympathetic and as a result there occurs a concurrence in effect between chromaffine system and thyroid. It is to be expected, since both thyroid and chromaffine system evidences an inhibitory effect upon the pancreas, that the latter gland will be autonomically innervated and its inner secretion will act as a stimulant upon the autonomic system. This view is supported by the fact that pilocarpin stops the glycosuric action of adrenalin in normal animals, and atropin causes the adrenalin-glycosuria to appear in athyroid animals. Extirpation of the pancreas leads to a decreased tonicity of the autonomic neurons and this to a heightened irritability of the sympathetic system as shown in the adrenalin mydriasis which appears in apancreatism.

*Action of the X Rays on the Blood and the Bone Marrow. (Action des rayons X sur le sang et la moelle osseuse.)*

AUBERTIN ET BEAUJARD. *Folia, Hematologica,* 1908, *VI,* 31.

The action of the X Rays on the lymphoid tissue and the spleen has been quite thoroughly studied. Their effect on the blood and the bone marrow is not so well understood.

In this article the writer discusses the effect of a single dose of moderate intensity. Total destruction of the entire blood forming apparatus may follow a single dose of excessive intensity. In these experiments the author has used doses which correspond to those used for therapeutic purposes, for instance in a case of leukemia. The application lasted forty to sixty minutes.

Nine adult guinea pigs were used in the tests; their blood was studied at short intervals, beginning two hours after the exposure to the rays, during the first day and every day thereafter until the blood became normal again or the animal was killed. The tissues were studied histologically after death. It was found that a primary leucocytosis occurred which was followed by a diminution of the leucocytes persisting for a long time, in some cases as much as twenty days. At certain periods many of the leucocytes (30 per cent.), especially the polynuclears, were found to be in a state of histolysis, but the proportion of such cells found did not seem to vary directly with the total leucocyte count. The polynuclears, eosinophile and most cells were all relatively increased.

Studies of the tissues after death did not show extensive or permanent destruction of the spleen follicles (Malpighian corpuscles) so that the diminution of leucocytes could not be due to destruction of lymphoid tissue. The spleen pulp, on the other hand, contained numerous large phagocytic cells (macrophages) apparently actively engaged in the destruction of red cells and leucocytes.

The bone marrow showed:

1. Complete disappearance of the gray marrow which was replaced by hyperplastic red marrow.

2. Increase in the number of myelocytes, polynuclears and eosinophiles and the presence of myelocytes containing both eosinophiles and basophile granulations. Nucleated red cells were increased. Phagocytic cells were less numerous than in the spleen.

The author concludes:

That the bone marrow is much less sensitive to the X Rays than lymphoid tissue; that a dose which would produce lymphoid necrosis, increases the activity and produces a hyperplasia of the bone marrow, an effect which begins within a few hours and lasts several days. The diminution in leucocytes which occurs after a single dose of moderate intensity is not due to degeneration of the bone marrow but occurs in spite of hyperplasia. It is due to increased destruction of the leucocytes principally in the blood and spleen and not to diminished cell formation.

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## Original Communications

### PSYCHOTHERAPY.*

*An address delivered before the Albany Monday Evening Club on February 22, 1909.*

By HENRY HUN.

"Psychotherapy" is a new word for an old procedure which has lately become very prominent. It means, as you doubtless all know, "mental treatment," and the term naturally brings to our minds Mrs. Eddy and Christian Science, and the Rev. Mr. Worcester and the Emmanuel Movement. It is unfortunate, I think, that your Committee did not select a layman to discuss this subject. He could have brought together a number of more or less well proven modern miracles and could have excited our wonder, admiration and enthusiasm. As a physician I must look on the subject in a broader way and must consider psychotherapeutics as only one department of general therapeutics and I must beg for a little patience while I say a few words about general therapeutics, the general treatment of disease, before I speak of one of its comparatively recent and relatively unimportant developments. The field is immense and I must be brief, so that what I shall say will be a series of broad statements or generalizations, which I hope I can make intelligible to you. There is no mystery about medicine nor do Doctors desire to clothe it in mystery, but it is one of the most complicated of subjects and cannot be understood without much study and more practice.

There have been from early times two great methods of therapeutics: one the empirical, the other the rational. The empirical method consists in giving to patients a number of chemical

*For most of the historical statements in this paper I am indebted to "Withington's Medical History from the Earliest Times."

substances, such as morphine or castor oil; or applying to the body certain physical agents, such as heat, cold, light, electricity, etc., and noting the effects. Then by gathering together the results of a number of physicians with the same chemical or agent, we decide by the statistical method as to its value. There is scarcely a physical agent or a chemical substance which has not been so employed in medicine. At the very dawn of civilization in Babylonia the sick were brought to the market-place and passers-by were interrogated as to whether they had ever had a similar sickness and what had cured them. The most curious and disgusting substances have been used as medicines. At the present time hundreds of new chemical substances are made each year in laboratories, mainly in those connected with chemical factories, and are tried by doctors in different diseases with the usual result that they are found to be of no value. Many of these new compounds such as phenacetine, antipyrine, acetanilid, etc., you may be familiar with.

Some very valuable medicines have been discovered by the empirical method and the advance of medicine has largely been made by this method, but it has been of less value even in the past than the rational method; although the greatest victory of the rational method must necessarily lie in the somewhat remote future.

The foundation principle of this rational method is that the right treatment of disease must be preceded by and must depend upon a sound knowledge of the human body in health and disease. But this knowledge is very extensive and very difficult to obtain and yet no rational therapeutics can exist without it. If a steam engine gets out of order it would be idle to ask the first man met on the street to repair it. We must apply to one who is accustomed to repair engines and who thoroughly understands their structure, and the same thing applies with even greater force to illness.

The study of the structure of the human body by the naked eye in anatomy and by the microscope in histology must be the starting point of all medical knowledge. This after centuries of close study, in spite of much opposition from those who have a prejudice against the dissection of the dead, which has frequently crystallized into laws forbidding it, is fairly complete. Then the study of the mechanical and chemical activities taking place within the body, called physiology and physiological chem-

istry, has been pursued for centuries with good results, in spite of much opposition from those who have a prejudice against vivisection and who have passed laws to prevent it. Next comes the study of the changes which take place in the organs of the healthy body in consequence of disease, called pathological anatomy. This, too, after much study, in spite of opposition from those who object to autopsies being held on their relatives, is now fairly well understood. (The refusal of permission to hold an autopsy is at times very aggravating. More than twenty years ago I published an unusual case of disease. No similar case had ever been recorded in medical literature. A few years ago a similar case was reported and there is some difference of opinion in the interpretation of these two cases. During the past twenty years I have been looking for such a case and finally one came to my office a few days ago. I shall examine it carefully and keep in close touch with the patient, but when he dies, as he soon must, probably some relative, perhaps a distant one, will refuse permission for an autopsy.) Next comes the study of the causes of disease which is mainly comprised under injuries (both bodily and mental), poisons and bacteria. Finally as the immediate precursor of therapeutics it is necessary to study how the causes of disease act upon the body and in what way the body reacts to them and what effort it makes to protect itself and how remedies act when introduced into the body. In this study, too, we are much bothered by the anti-vivisectionists, but up to the present time in this country we have been allowed to experiment with remedies upon animals before trying them on human beings, which seems a reasonable procedure unless the animal's life is more valuable than man's. You can see how long and difficult a way we have traversed before we can commence to treat disease rationally and at how many points we have been opposed by our fellow beings whom we have been trying to help, but who oppose us fiercely, being guided, it seems to me, by their emotions rather than by their reason. At the present day we have acquired certain fundamental truths in rational therapeutics.

We have learned what disease is. That diseases are processes occurring in the human body in which the physiological activities are disordered as the result of mechanical or chemical injury to the body and that these disordered physiological activities, or symptoms of disease, as they are called, are mainly curative

in their nature and tend to restore the body to health or at least to prolong its life. A cough is a symptom of disease but it is also curative as it removes mucus or a foreign body from the windpipe where it might choke the patient. When a patient becomes too weak to cough, mucus may collect in the windpipe and not being coughed out may strangle the patient, and, as the air bubbles in and out through the mucus it produces the so-called "death rattle." We have no time to consider the curative nature of other symptoms.

We have learned, consequently that most diseases are self-limited and after a time, which is fairly definite for each disease, terminate in health in the great majority of cases, although a certain number, varying in different diseases, terminate fatally before the process is complete. This is quite evident in pneumonia, typhoid fever, etc., but it is quite as true in neuralgias, insanity and functional nervous diseases. They, too, run a certain definite course which is sometimes of very long duration.

We now know that the great majority of diseases terminate in recovery whether medicine is given or not. Some diseases advance and terminate in death whether medicine is given or not. Some diseases do terminate in death if medicine is not given and many diseases are shortened and made less distressing by the administration of medicine.

We have further learned by our study that certain diseases are caused by too little or too much secretion from some one gland in the body. Thus we know that when the thyroid gland is small or diseased and secretes little or not at all, a disease called myxœdema results, which is fatal if left to itself, but which can be promptly cured by eating some dried thyroid gland of the sheep or other animal. On the other hand, if the thyroid gland is large and secretes too much there results a disease called exophthalmic goitre, which is at times fatal and is always serious and which can be absolutely cured by removing the gland.

We have further learned that when germs enter the body and manufacture poisons or toxins in it, which seriously disturb the bodily functions and may cause death, the body reacts by producing antitoxins, which cure the patient and which accumulate in such quantities in the blood, that the blood of animals or man thus infected can be injected into others to produce immunity or even cure of the disease. The best known example

of this is the diphtheria antitoxin. By it diphtheria has been changed from a most dreaded disease into one comparatively mild, if treated early.

Very many more important things we have learned in rational therapeutics, but I must content myself with mentioning these few. Were it not for these various protective functions of the body, which have been summed up in the old phrase "vis medicatrix naturae," the human race would have long since ceased to exist. The subject is so interesting and of such great value in the treatment of deadly diseases that physicians may perhaps be justified in devoting their attention to it rather than to psychotherapeutics and the more or less imaginary diseases to which it is applicable. And yet psychotherapeutics has engaged the attention of physicians for many years and all that we really know about it has been obtained from them rather than from laymen.

No one who has seen much of illness can fail to be impressed with the large amount of mental suffering which accompanies every sickness, whether organic or functional. Much of this mental suffering is real and results from the enforced idleness, the financial outlook, the actual pain, etc., but much of it is imaginary and the result of apprehension. The unusual occurrences within the body are bad enough, but we know that by disease we die and our feelings of illness are made much worse by the apprehension that they mean serious disorder and death. A person wandering through an unknown and dangerous country is greatly relieved and cheered if he can secure a reliable guide; and a sick man turns eagerly to a physician who knows the disease and its dangers and who can guide him straight.

It has long been known that the physicians' visit, especially if a careful examination of the patient has been made, is of the greatest value to the sick man in relieving his fears and apprehensions, and it has been further known that medicine acts in the same way. The patient takes it believing that it will benefit him and prevent worse symptoms appearing, and it often does so. Thus physicians from the earliest times have given bread pills and other "placebos" entirely for their mental effect. Physicians are often accused of not dealing frankly with patients, of not telling them the whole truth. But why do physicians withhold the truth, why do they encourage patients whom they know may or must die. Is it not for the patient's

good? Is it not to replace despair by hope and to give courage to fight for life? Is it not a mental treatment? Many of the eccentricities and mannerisms of physicians were and are assumed or exaggerated to impress the patient and produce a mental effect. Electricity, blisters, the red hot iron and other agents are often used in part for the same purpose.

A somewhat new field was opened when Mesmer, a member of the medical profession, began to cure disease by means of an imaginary magnetic fluid, by mesmerism; although somewhat similar claims had been made before his time. Mesmer continued to claim up to the time of his death the existence of the magnetic fluid publicly, but privately he is said to have admitted to some of his pupils that it was really a question of will power. Although Mesmer's views were never accepted by the medical profession, yet he had a few followers; chief among them was Puységur. Perhaps the one of greatest interest to us was Charles Poyan, a Frenchman who introduced mesmerism into the United States about 1836, and who probably started the movement which produced the systems of Quimby and Mrs. Eddy.

Braid in England started the closely allied idea of hypnotism by the method of fascination and from his day the subject of hypnotism, a curious abnormal condition of the mind, has been closely studied by the medical profession down to the present time, especially by the French school. Charcot collected a great amount of clinical material in this line without, however, satisfactorily defining the condition, but pointed out that almost all the phenomena of hypnotism are similar to symptoms frequently found in hysteria. In both conditions, it is well to remember, there is much chance and much reason for deception. Luys introduced the idea of telepathy or scientific witchcraft, the action upon patients of medicine in a sealed tube held at a distance which has been abundantly disproved, but which still crops up at times, as in the so-called "absent treatment." Bernheim of Nancy finally reached the conclusion that hypnotism and all its allied states was simply a matter of suggestion. That word, I think, expresses the best medical opinion on the subject to-day. An idea suggested to the patient whether from without or from within the body in consequence of some abnormal feeling appears to him to be the truth or the right thing to do; he being at the same time in a condition of consciousness less than normal.

People accuse the doctors of neglecting this subject and not

interesting themselves with it. I hardly think this is true. There is no class of people who have worked at, discussed, and fought over this subject as have the doctors. In my own case even as a young man I was much attracted by it and gave up many months of my precious student's years in Europe to studying it with Charcot, who was certainly the most prominent man in that line in that day. If I came away a thoroughly disillusioned man it was not my fault. Even at the present day there are few subjects which interest me more.

Nor have physicians been slow to make use of suggestion, which they have found to be the key-note of both hysteria and hypnotism, for the relief of disease. We have already spoken of the bread pills of the past. At the present day there are many physicians who make use of suggestion and who in many diseases rely more on suggestion than on drugs. I admit that the majority of doctors probably give too much medicine and too little wise advice or suggestion. I met not long ago in consultation a physician of more than average ability, who had tried to get Dr. Janeway to see the case and not being able to do so, said to Dr. Janeway over the telephone: "The case is one of hiccough, can you suggest anything for it?" "And," said the doctor to me, "Janeway said the most curious thing, which I have not been able to understand and which perhaps you can explain." He said, "Doctor, I have sometimes thought in such cases that time does as much for us as does medicine." "Now what do you think of that?" said the doctor, "what does that mean?" "I was so astounded," he said, "that I repeated my question to Dr. Janeway thinking he had not understood me, but got the same answer, which I cannot at all understand." This doctor believed apparently that no case of disease would get well without receiving the appropriate drug. Unfortunately there are many otherwise good doctors who believe as he does. One of the most interesting books in this line of treatment by suggestion is that of Dubois, which is much quoted by the Rev. Ellwood Worcester, and which in my judgment, is far more rational and effective than either Mr. Worcester's Religion and Medicine or Mrs. Eddy's Science and Health.

Suggestion when made by a physician in whom the patient believes, especially if he be of strong personality, can accomplish much. It can relieve the patient's fear and apprehension and give him confidence of speedy cure. It can strip the symptoms

of disease of the fatal significance often attached to them and can make them mild and comparatively easy to bear. It can cure symptoms which are mainly due to being looked for and to apprehension and to worry, and such symptoms are many. I believe that the most stolid of medical students cannot long study heart diseases without imagining that he also has heart disease, and we all know how worry and bad news will produce insomnia and anorexia, long words meaning loss of sleep and loss of appetite. There are many such symptoms and even diseases which suggestion can cure. But it cannot cure incurable diseases, and it cannot cure organic diseases, such as malaria, which medicine promptly cures.

Some of the simplest medical procedures produce the most remarkable suggestions in the minds of patients. When I was yet a student in the Boston hospital I had charge of an Irishman. The patient in the next bed was a very sick man and in taking his temperature I placed the thermometer in his armpit, from which, with a boy's idea of cleanliness, I placed it in the mouth of my Irish patient to take his temperature. The very sick man died; so that the thermometer was no longer placed in his armpit. A few days later the Irishman claimed that the instrument did not do him nearly as much good as previously; for it seemed to have lost its strength. A patient in the dispensary of St. Peter's Hospital, to whom I gave a prescription, telling him to rub it on his arm; really meaning him to take it to the drug-room and get the liniment it called for, came back some ten days later with a minute scrap of paper and begged for a new plaster to rub on his arm which was nearly well; the old plaster had done him such a world of good but was now nearly worn away.

The reason why physicians do not use suggestion more is that they are restrained by the responsibility of their profession and cannot afford to be reckless. Many of the expressions used in suggestion are not strictly true. By the mere making of a prediction in regard to a symptom emphatically the prediction may on that very account come true, but it may not, and then the physician appears to be wrong in something which he ought to know and he loses the patient's confidence. A layman may fail in his prediction and not lose much because he is not supposed to know what he is talking about. A doctor therefore does wisely to use suggestion, but to use it moderately and not to

say what is only half true in order that it may become true and to wait for aid from that great helper of the physician—time. To me it seems probable that a calm, cheerful explanation of, and reasoning about the malady will do greater and more permanent good to most patients than will suggestion with its tendency towards mysticism.

Up to the present time I have discussed mental healing as a department of medicine which it really is, and perhaps from a purely medical standpoint I should stop here.

From the earliest times, however, medicine has had a great rival. Greater in the past than in the present. Hippocrates, the great father of medicine said: "No one disease is more divine or more human than another—none arises without a natural cause." But in this other system disease is supposed to be of supernatural origin and to be due to evil spirits entering the body, or to human enemies acting through witchcraft, or to the anger of a God; and the disease is to be cured by rendering the body an unpleasant abode for the evil spirit usually by foul smells or by beating and pounding, or by calling for aid to other spirits, or by the miraculous power inherent in certain objects, or by intercession by prayer and sacrifices to God. This system is religion as it appears in precivilized times and in barbaric tribes to-day.

Of fumigation to drive out evil spirits we find a typical instance in the Apochrypha where Tobias frees his bride from a demon by fumigating her with a fish's heart and liver. Of beating and pounding to drive out evil spirits instances occur even at the present day. On Mount Lebanon in Syria there is a Convent called Kuzheye which has the reputation of curing the insane. When a patient is brought there he is taken by the Monks into a large damp cave, seated upon a rock, a chain is fastened about his neck and he is detained for three days and three nights in the hope that St. Anthony will cast out the demon. St. Anthony failing, the treatment is continued and when thought necessary by the Monks a ceremony of exorcism is performed. A priest takes a heavy boot in his right hand and beats the insane person repeatedly upon the forehead and in his left hand the "stola" and the book from which he reads the formula of exorcism saying, "Get thee away from this person accursed Devil and enter the Red Sea and leave the temple of God. I force thee in the name of the Father, the Son and the Holy Ghost to go

to the everlasting fire, etc., etc." Upon the death of the patient, which usually ensues, the Monks announce that St. Anthony has taken him up to heaven and heavy fee is collected from the relatives.

Examples of a nobler kind are numerous in the old testament and a fine exposition of it is to be found in Homer in the opening book of the Iliad. Chryses the aged priest of Apollo comes to the Greeks offering a heavy ransom and begging the release of his captive daughter. Agamemnon refuses and threatens the priest, who, thereupon, prays for vengeance to Apollo. The God hearkens to him and descends from Mount Olympus and shoots his arrows at the Greeks who die by hundreds. A council of the Greeks is called, the girl is returned to her father, the priest, and a large sacrificial slaughter of cattle is made to the God, who ceases his slaughter upon the prayer of his priest. The whole story is told in the simplest and finest form of expression. The onset of the epidemic is described as a black thunder storm in these words:

> Down he came,
> Down from the summit of the Olympian mount,
> Wrathful in heart; his shoulders bore the bow
> And hollow quiver; there the arrows rang
> Upon the shoulders of the angry God,
> As on he moved. He came as comes the night,
> And, seated from the ships aloof, sent forth
> An arrow; terrible was heard the clang
> Of that resplendent bow. At first he smote
> The mules and the swift dogs, and then on man
> He turned the deadly arrow. All around
> Glared evermore the frequent funeral piles.

At the same time that these supernatural events were taking place there were in the Grecian camp certain of the Aesclepiades, the sons of Aesculapius, named Podalirius and Machaon, who bound the wounds and gave drugs to stop the bleeding and to relieve pain. It is said by Arctinus of Lesbos (B. C. 770) that Aesculapius "endowed one of his sons with nobler gifts than the other; for while to the one (Machaon) he gave skilful hands to draw out darts, make incisions, and heal sores and wounds; he placed in the heart of the other (Podalirius) all cunning to find out things invisible and cure that which healed not." This is a clear distinction between medicine and surgery. Thus in

Homeric times there was a religious and a medical form of treatment both in existence.

It is often said that in the earliest times the priest was the only physician, but I think this is very doubtful. One of the Egyptian tombs which surround the pyramids of Sahkarah is that of Sekhet'enanch, chief physician to the Pharaoh Sahura of the fifth dynasty more than 3,000 years before Christ. The domestic medicine chest of the wife of the Pharaoh Menthuhotep of the eleventh dynasty (about 25000 B. C.), has been found with its vases containing dried drugs, its roots, its pieces of linen cloths, its spoons, etc. The oldest complete book in existence, the Ebers' Papyrus, was written about 1550 B. C. and is a purely medical book, being full of prescriptions of all sorts and of crude studies in anatomy, physiology and diagnosis. The prescriptions are curious—a favorite one was: "Boil the body of a large beetle, put him in oil and apply to the part; then cook his head and wings, put them in serpent's fat, warm it, let the patient drink it." After all, this ought not to seem strange to us, who use as medicine so many animal extracts, such as pepsin or dried thyroid gland. Nor were the fair sex neglected by the doctor, whether it be her complexion or her fears. "To make the skin of the face smooth, soak meal in spring water, let her wash her face daily and then apply the meal." The meal was probably as efficacious and as harmless as the modern toilet powders and the daily washing of the face was good for any woman. "To keep away mice, smear everything possible with cat's fat."

Long before the Christian era, there are records of physicians attached to courts and in other positions with the mention of salaries paid to them. Withington in summing up the medical history of Greece says: "To conclude; we find in Ancient Greece, besides physicians proper, three classes of men connected with the healing art—priests, philosophers and gymnastic trainers, corresponding roughly to our faith healers, pure physiologists and bone setters respectively. The profession of medicine was separate from, though somewhat indebted to all three, but it was most separate from, and least indebted to, the priests."

To come from Pagan to Christian times, the Catholic church from its foundation to the time of the Reformation and later, bears constant witness to the fact that disease is a punishment sent by an angry God for our sins, and that cure is to be obtained

by prayers to God and to the Saints and to the efficacy residing in holy relics of Saints. The belief and the practice were so universal that it is not necessary to cite instances of them. Religious processions, pilgrimages to shrines, and the exhibition of holy relics were universally employed to cure disease. They all exist in the Catholic church to-day. I read in the paper of a religious procession on the quay of Messina with the display of holy banners and relics, after the recent earthquake, and of prayers of thankfulness throughout Italy because God in his mercy had spared certain islands when he destroyed the cities and villages. The shrine of Lourdes is of world wide fame; scarcely less so is that of St. Anne de Beaupre, near Quebec; while Auriesville at the junction of the Schoharie Creek with the Mohawk has a local fame. All these shrines have well authenticated cases of cure to their credit.

In former days miracle cures caused a much greater stir in the world than the various faith cures cause to-day even with the aid of the associated press. Many volumes published in past centuries were filled with descriptions of thousands of such cures, but they are not very convincing to medical men, and the great mass of the Catholic Clergy and people do not waste much time on such foolishness nor on its modern substitutes which we are about to describe, but put their trust in doctors and medicine. And yet I think that I have never examined a Catholic for lung or heart disease but that I have found next to his skin one or more scapulae to protect him or her from harm.

We have had thus from the earliest times these two methods of healing. While this religious method of treatment in the Catholic Church has continued unchanged in its methods during 1900 years, the other branch of treatment of equal antiquity which finds its historical beginning in the Ebers' Papyrus, or earlier, has undergone a marvelous change. It has undergone a great development and although very far from perfect as yet, it can accomplish with certainty what even our fathers could not do and what our grandfathers did not dream of. It may even claim an honored place among the other natural sciences which are conquering the forces of nature slowly but surely.

The Protestant Churches have been more circumspect in regard to the supernatural origin and cure of disease, but witchcraft will always remain as a dark blot, and prayers for the cure of the sick still are offered daily from many thousands of lips,

and votive offerings and sacrifices are still made in cases of recovery and even during the illness. To me it seems unlikely that in response to prayer the Almighty will interfere in the relatively unimportant ills of the present when he did not interfere to prevent horrible atrocities in the past, some of which were committed in his name. Many new religions or sects have sprung up in which reliance for the cure of disease was placed directly upon the Lord. They are too numerous to mention, and they are almost all composed of former members of Protestant churches. They have come and gone but the most important one to-day is Eddyism. This system which is based partly upon the Bible and partly upon a philosophy which claims that everything is spirit and that matter does not exist, like many new things, met with a wide acceptance. It claims wonderful cures, perhaps even the raising of the dead, but these claims will not bear close examination. I have read a considerable number of these cures in preparing this paper, but I have not been convinced by them that Eddyism is a valuable addition to our therapeutics.

Nor do I believe in the theory upon which Christian Science is based. The influence of the mind upon the body has been, I think, greatly overestimated. There is abundant proof that mental states can produce a number of functional disturbances, but that actual disease, either functional or organic, can be so produced is, I believe improbable. Indeed the weight of many experiments extending over many years tends to prove the reverse. It is a common experience of physicians that a large number of persons are in constant expectation that they will acquire some special disease: it may be cancer, or insanity, or tuberculosis, or heart disease, or some other fatal malady. Yet although these persons cherish and dwell upon these anticipations during years the dreaded disease rarely appears. So true is this that it has become a proverb—a crystallised experience of mankind—that "no one dies of the disease which he expects." "It is the unexpected which happens."

Doubtless by a sort of mental suggestion Eddyism can make a person more cheerful and amiable. It can give new ideals and enable one more easily to break away from bad habits. It can cure certain functional diseases and it can cause organic diseases to be borne more cheerfully and complacently. All this is of value, but it is more than compensated for in that in organic

disease such as diphtheria, cancer, etc., valuable time is wasted at the commencement of the disease, when the proper remedy might easily have brought about a cure which has become impossible. To persons who are accustomed to think (alas! their number is not many) the statements in Mrs. Eddy's book are childish and devoid of reason. The only explanation that I can discover for the acceptance of the book by so many people is that our religious leaders and guides have for so many centuries forbidden us to use our reason in such matters, but have accustomed us and even compelled us to accept incredible things by faith, that they have prepared a favorable soil for Mrs. Eddy's doctrines. For there are many things in the Bible such as the oft quoted one of Jonah's getting into and living three days in the belly of the whale, which require for their belief as complete an abandonment of reason and as great a flight of imagination or faith as anything in Mrs. Eddy's "Science and Health." It is useless to argue against Eddyism. People who believe in it are either incapable of accurate reasoning or have never studied what disease is. I believe that in time it will gradually crumble away or take on an altogether different form.

The latest movement in this direction is that of the Rev. Ellwood Worcester, of the Emmanuel Church in Boston, and is usually known as the Emmanuel Movement. Like Christian Science, this movement is also based upon the Bible and upon a psychology in which the somewhat doubtful hypothesis of subconscious mind plays a great part and is extended to an extreme degree. In both movements hypnotism, conscious or unconscious, seems to be much in evidence.

The Emmanuel Movement if one may judge from statements in the book "Religion and Science" is based in great part on Dubois' work "The Psychic Treatment of Nervous Diseases," and the psychological element is as strong as, possibly stronger than the religious element. Yet the religious element is strong. The patients are treated in ecclesiastical buildings. Prayers and appeals to God are constantly made and Dr. Worcester on page 67 of "Religion and Science" after explaining his manner of quieting, or really of hypnotising, patients says: "I ought perhaps to add that I personally attach a religious importance to this state of mind. When our minds are in a state of peace and our hearts open and receptive to all good influence I believe that the spirit of God enters into us and a power not our own

takes possession of us. Thus I am tempted to explain the marked moral and physical improvement which I have frequently seen follow."

The Emmanuel Movement escapes the danger of treating curable organic diseases until they become incurable by having the advice of a competent physician in every case; so that in great contrast to Eddyism it is comparatively harmless. In the way of cure it can accomplish just what the visitation of a holy shrine by a devout believer, just what Eddyism and just what suggestion in the hands of a competent physician can do and no more.

I have made this long excursion into the history of the cure of disease to place the Emmanuel Movement in its historical setting and to show you that it is not so new as it seems, but is only a modification of a faith cure which extends back to barbarism, which has accomplished but little in the past, and which, after the novelty of these new attempts wears off, will, I think, accomplish little in the future. The wonderful cures reported are not strange to a physician. Such rapid and complete cures are constantly occurring in ordinary medical practice. I myself have seen paralyses of long standing disappear under a treatment sometimes of five minutes' duration, sometimes of five days. A physician is not apt to advertise his successes, but the papers are full of letters and even of affidavits as to cures by patent medicines, which are not by any means all fraudulent.

The question resolves itself into this: Can a priest who calls in a physician for the diagnosis of all cases and for the treatment of the organic diseases, treat by suggestion functional diseases better than can the physician? I know of no reason to think that he can do so better in the future than he has in the past, indeed on account of the weakening of theological beliefs I do not believe he can do so as well, and whether he does or not, I think that the procedure will tend to make the patient superstitious and will support the view of the personal interference of God in the individual case rather in contravention of his established laws, which view is opposed to the whole trend of modern science.

The Emmanuel Movement seems to me less religious than the miraculous cure, or than Eddyism, in that it limits the power of the Almighty to the functional diseases, whereas the Saint and the Eddyite claim to cure all diseases, as Christ is said to have done when on the earth. I dislike to say anything disagreeable about the Emmanuel Movement because it has paid

the highest possible compliment to the medical profession. It not only calls upon the physician to make the diagnosis of the disease, but when the disease is organic it apparently concedes that such a disease is beyond the power of the priest and of the direct in-dwelling[1] of the Almighty and the case is turned over, in accordance with the divine plan of the universe, to the more efficient treatment of the physician and his drugs[2]. This, I take it, is the highest exaltation which the medical profession has ever received; although, as a physician, I hesitate somewhat to accept it as true.

[1]See above and in Religion and Science, page 67.

[2]Worcester's Religion and Science, page 4. "We believe God has power to cure all disease, but we do not believe God cures all disease by the same means."

# THE PARAVERTEBRAL TRIANGULAR AREA OF DULNESS IN PLEURAL EFFUSIONS (KORANYI-GROCCO SIGN).

## With the Report of a Case of Solitary Abscess of the Right Lobe of the Liver Presenting this Sign, but Without an Exudate in the Pleural Space.

By HERMON C. GORDINIER, M. D.,

*Professor of Physiology and Anatomy of the Nervous System, Albany Medical College.*

To Prof. Korányi of Budapest, rather than to Grocco, of Florence, belongs the honor of first directing the profession's attention to a new and valuable diagnostic sign in pleural effusions, namely a triangular area of dulness on the side opposite to the pleural effusion. Korányi says: "In forgesetzen untersuchungen stellte ich dann dies bis dahin unbekannte fest, dass nach mehr tagigem Bestehen solcher Exsudate oder deren anwachsen die dampfung sich auch auf die gesunde seite aus dent und Zwar wie ich dies in Ungarischer Sprache im Jahre 1897 in IV Bande des Handbuch der Speciellen Pathologie und Therapie S. 7. 7. beschrieb, und auch mit einer Schem atischen Zeichung illustrierte in Gestalt eines Drieckes. Als Ursache bezeichnete ich die Verdrangung des mediastinum posticum. Grocco, on the other hand, independently described this sign in March 1902, as follows: (1) "A new physical sign which he had observed in pleural effusions, a paravertebral triangle of the side opposite that of the pleural effusion. When with a pleural effusion of

(1) Abstracted from the article of Thayer and Fabyan.

**To Illustrate Dr. Gordinier's Article on "The Paravertebral Triangular Area of Dulness in Pleural Effusions (Koranyi-Grocco Sign) with the Report of a Case of Solitary Abscess of the Right Lobe of the Liver Presenting this Sign, but without an Exudate in the Pleural Space."**

*Albany Medical Annals, April, 1909*

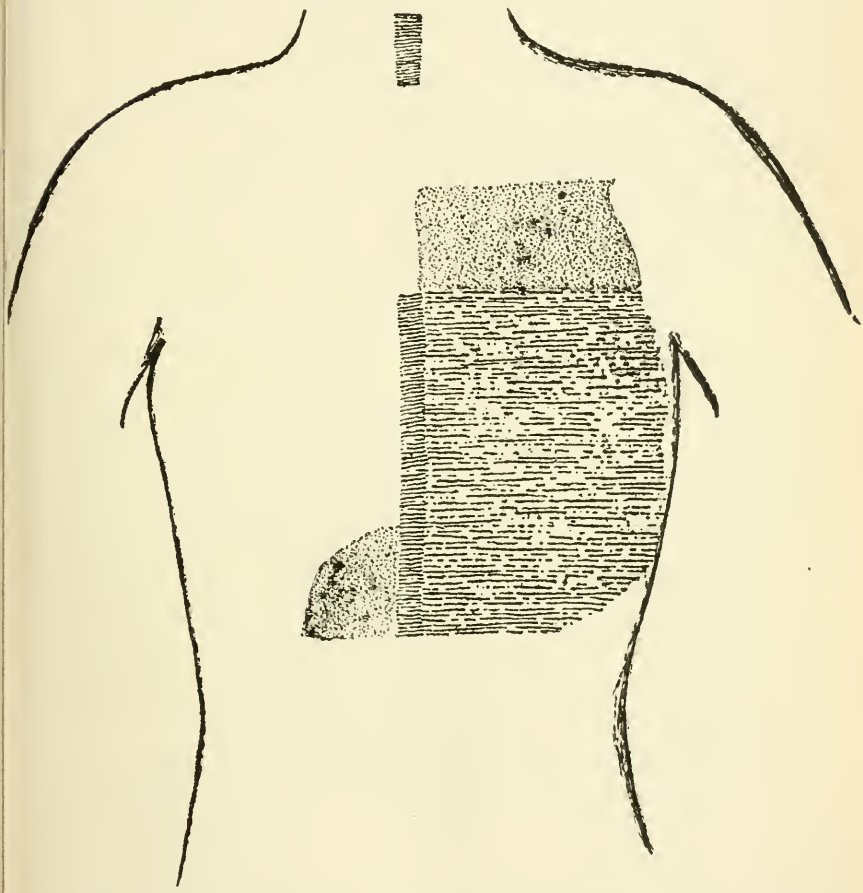

Diagram showing the relative dulness and absolute flatness of right chest posteriorly (case of liver abscess) with the paravertebral area of dulness on the left side.

The dotted lines show area of relative dulness and the triangular area. The straight lines show area of flatness.

sufficient size, one percusses from above downward, along the spinous processes of the vertebrae, with the patient in the sitting posture, there appears at the level of the fluid, a dulness which, relative at first becomes absolute as one passes downward in association with a progressively increasing sense of resistance. In like manner by percussing downward on the healthy side along lines parallel to the spinous processes, there is noted, opposite the dulness in the median line, a paravertebral area of deficient resonance of triangular shape. One side of this dull area is represented by the line of the spinous processes; another, by the lower border of the area of thoracic resonance for a short distance, which varies in length from two to three or more centimeters; the outer side is represented by a line which, starting from the base, rises obliquely to unite at an acute angle with the median line at about the upper limit of dulness. In right sided effusion, other things being equal, the paravertebral triangle has seemed to me more marked. Although symptomatology abounds in methods for differential diagnosis between pleural effusion and pulmonary infiltration, there can be no doubt that the sign which I have mentioned may be of value in some cases, especially in right-sided and encapsulated exudates. I shall return to this subject later with a detailed description which may illustrate that which, if I am not mistaken is a diagnostic sign of pleural effusions hitherto undescribed." Thus it is perfectly evident that the observations of Korányi in 1897 were absolutely unknown to Grocco, whose observations in regard to this new sign although independent occurred five years later. It seems to me, in order to properly place the honor in reference to the discovery of this sign, that it should be designated by the name of the Korányi-Grocco Sign.

The discovery of Korányi and Grocco that in pleural effusions a triangular area of dulness exists on the opposite side has been abundantly confirmed by a number of excellent observers. Baduel and Siciliano in 1904 in a communication on this subject not only confirmed the above mentioned observation but proved experimentally that this triangular area of dulness was chiefly due to lateral displacement of the posterior mediastinum over toward the healthy side. In the same year Rauchfuss and Prof. Kraus published valuable confirmatory evidences of its great diagnostic import. Jamburger in 1906 at Prof. Escherich's Clinic in Vienna studied this sign in the pleural exudates of a number of children and found it constantly present.

To Illustrate Dr. Gordinier's Article on "The Paravertebral Triangular Area of Dulness in Pleural Effusions (Koranyi-Grocco Sign) with the Report of a Case of Solitary Abscess of the Right Lobe of the Liver Presenting this Sign, but without an Exudate in the Pleural Space."

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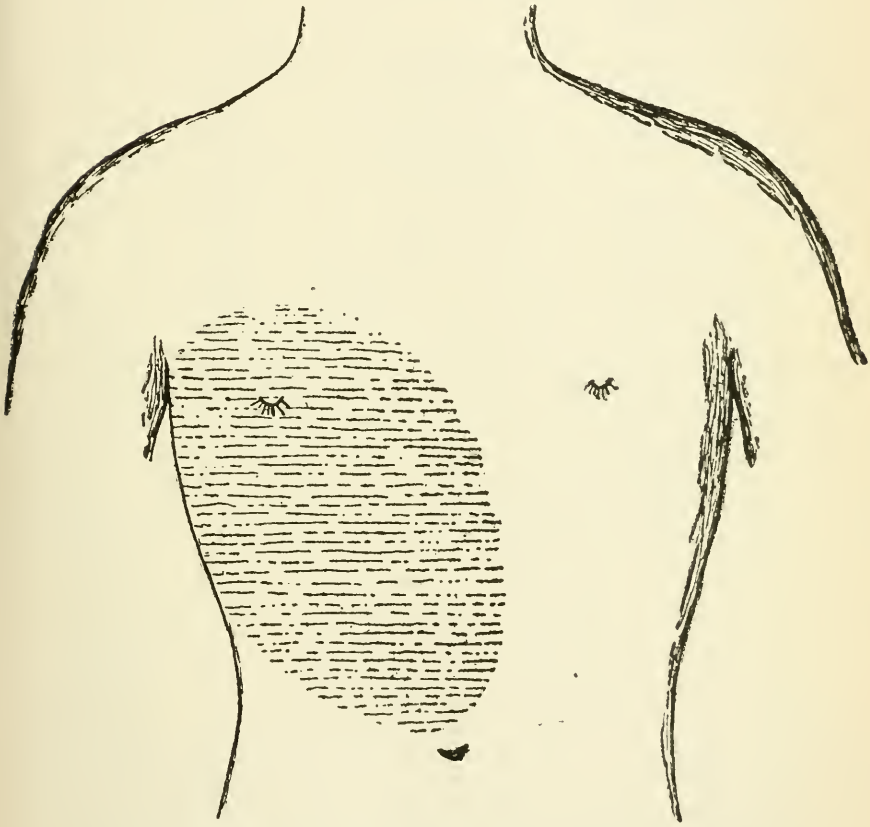

Diagram showing the area of dulness of the enlarged right lobe of the liver, case of liver abscess. This dulness extended from the level of the second rib to within two centimeters of the umbilicus.

(2) Ferraninni in 1904 investigated the significance of Grocco's triangle in unilateral pleurisies and concluded that it was a valuable sign, and that it occurred in all cases, and that it increased in size, pari passu with increase of the pleural effusion. Diminution of the triangle indicated absorption of the fluid. He believes the triangle is produced by the pressure exercised by the distended pleura of the opposite side pushing the heart to the other side and compressing the lung backward into the region where the relative dulness appears.

(3) Dr. Ewart says that the crucial proof of its genuineness is its disappearance when the patient assumes the lateral decubitus on the side of the effusion and its reappearance when the patient sits up or turns to the sound side. If Grocco's sign is not present there can be no fluid in the chest. Ewart believes with Baduel and Siciliano, that the sign is due to displacement of the posterior mediastinum and not due to pulmonary condensation or displaced viscera as suggested by Ferraninni.

Thayer and Fabyan, in a most comprehensive article on the paravertebral triangle of dulness in pleural effusion, state that in thirty-two cases of pleural effusion a paravertebral triangle of dulness at the base of the opposite chest was clearly demonstrated in thirty. In one of the remaining cases an instance with small effusion in which the examination was rather hastily and imperfectly made, but a small indefinite area of dulness was noted. In the other case the absence of the triangle was easily explained by the position of the exudate, an interlobar empyema. In a third instance in which a triangle was demonstrated later, it was missed on the first examination. The sign may be regarded as practically constant in cases in which there is free fluid in the pleural cavity or in which an encapsulated effusion impinges on the spine. As to the cause of the sign, they accept the explanation offered by Baduel and Siciliano, namely that the fluid lying against and passing anteriorly over the bodies of the vertebrae, acts as a mute in suppressing the sonorous vibrations of the spine. Frakenheimer in a paper read at the annual meeting of the California State Medical Society in April 1907, found Grocco's sign present in every one of thirty-one cases of pleural effusion and absent in every control case. It is larger in right-sided pleural effusions and the hypothenuse of the triangle is slightly convex. He thinks the triangle is due more to displacement of the mediastinal structures than to the deadening influence of fluid on the vertebral vibrations.

To Illustrate Dr. Gordinier's Article on "The Paravertebral Triangular Area of Dulness in Pleural Effusions (Koranyi-Grocco Sign) with the Report of a Case of Solitary Abscess of the Right Lobe of the Liver Presenting this Sign, but without an Exudate in the Pleural Space."

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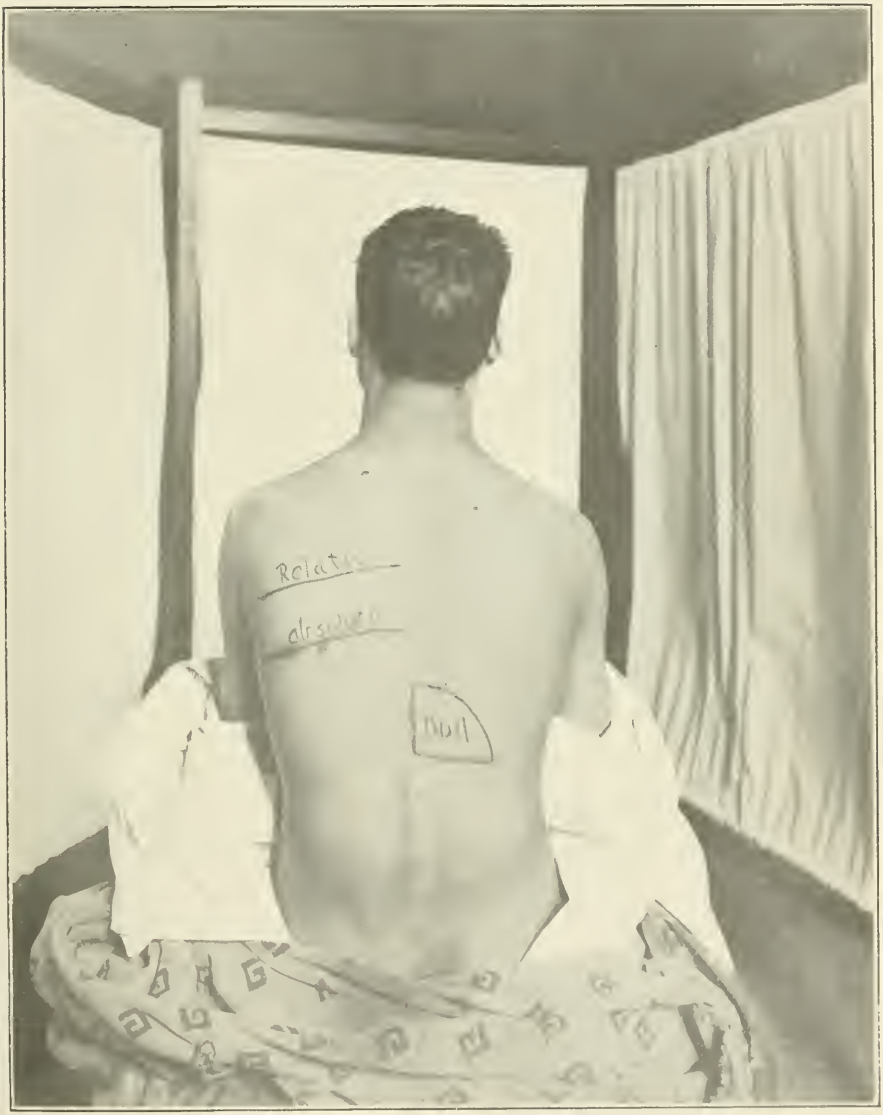


Photograph from a case of left sided pleural effusion showing the relative dulness and absolute flatness, together with the triangular area of dulness of the opposite side. (Personal observation.)

Within the past two years several observers have reported cases in which a paravertebral triangular area of dulness existed in conditions extra-thoracic.

Ewart has observed dulness along the spine in Ascites. Smithies called the attention to Grocco's sign in a patient whose affection proved to be an enormous multilocular cystadenoma in the abdominal cavity. Smithies has very recently, also shown that a paravertebral triangular area of dulness is often found in advanced pregnancy and obtained in five cases a paravertebral area, triangular in shape, to the left of the mid-vertebral line, but without ausculatory phenomena. Smithies states that the paravertebral dulness in pregnancy appears to be due primarily to the abdominal tumor. This doubtless displaces other viscera upward. The greater "give" on the part of the diaphragm is to the left, where no solid organ, such as the liver is found to support the abdominal thoracic partition. The mediastinal tissues may be displaced by this more than normally arched diaphragm, and the lung may be temporarily moved away from the spine.

Of the twenty-nine cases which I have observed during the past two years, twenty-seven were cases of pleural effusion, one a case of encysted left-sided empyema and the other a case of large solitary abscess of the right lobe of the liver.

The paravertebral triangular area of dulness was present in every one of the twenty-seven cases of pleural effusion. It was absent in the case of left-sided encysted empyema and present in the case of abscess of the right lobe of the liver which had displaced the diaphragm upward and so compressed the right lung that the whole right pleural cavity was effaced. The physical signs in this case were typically those of a right-sided pleural effusion with a perfectly distinct paravertebral triangular area of dulness of the opposite side without, as shown by the autopsy an exudate in the right pleural sac. The history of this rather unique case is as follows:

Mrs. F. E., age 41 years. Entered the Samaritan Hospital, September 10, 1907, complaining of pain in the right side, shortness of breath on exertion and dryness of the mouth and throat.

*Family History.*—Mother died of some obscure disease. Father of pneumonia. Had one brother and four half-sisters living and in good health. Lost a half-sister from valvular disease of the heart. There was no history of rheumatism, tuberculosis or cancer.

*Personal History.*—She had had all the common diseases of childhood. Had typhoid fever when 13 years of age; three years ago had la grippe; two years ago had nervous prostration; last winter had inflammatory

rheumatism. Never had dysentery, appendicitis, mucous colitis, or gall stones. Until very recently her appetite had always been good. She had had some pain in the region of the right ovary.

*History of present illness.*—About two weeks ago she was awakened by a severe chill and the following morning was seized with a severe pain near the tip of the ninth rib directly over the right lobe of the liver. The pain seemed localized, not being transmitted either upward or downward. Several times during the day she vomited a greenish stained material. The vomiting was not preceded by nausea and continued until September 9th, when it ceased. She complained of shortness of breath and a fulness or weight in the right side of the abdomen.

*Examination.*—The patient assumed the dorsal decubitus and was supported by pillows to relieve the dyspnoea. She was slightly built, her muscles were flabby and her facial expression pinched. The conjunctivae and skin were bile stained. Her respirations were 40; pulse 120, and regular; temperature 99 degrees Fah. Her lips, finger tips and ears were cyanotic. The jaundice she was positive did not come on until three days prior to her entering the hospital.

*Physical Examination.*—Lungs: Inspection showed a decided fulness and diminution of expansion of the whole right side of the chest. The intercostal spaces were effaced and Litten's Sign was absent. Palpation elicited increased vocal fremitus in the right clavicular and high interscapular regions. Percussion gave typical Skodaic resonance over the same named regions. In the lower right infra-clavicular and mammary regions absolute flatness existed which was continuous below with the dulness of the right lobe of the liver and tumor like mass filling the upper right quadrant of the abdomen. Flatness also existed in the axillary region, and posteriorly from the angle of the scapula to base of chest. The vocal fremitus, resonance, and vesicular murmur were absent over the flat areas. In the high scapular and clavicular regions of the right side distinct bronchial breathing was heard. The flatness also extended over into the left chest forming a definite triangular area whose summit was at the level of the tenth dorsal vertebra. This flatness extended outward to the left of the spine eight cubic centimeters. Over this paravertebral area the vesicular murmur and the vocal resonance and fremitus, were very distant, and distinct aegophony was heard.

*The Heart.*—The apex of the heart was in the fifth interspace three cubic centimeters to the left of the left mammillary line. No thrill or friction could be heard. A basic systolic pulmonic murmur and a systolic apex murmur were heard, strictly localized. No venous hum existed in the vessels of the neck.

*The Liver.*—The liver dulness began at the fifth rib and was continuous above with the flatness of the chest. It extended downward in the right mamillary line ten cubic centimeters below the costal margin. It was palpable and very tender; its lower margin was smooth.

The splenic dulness began at the ninth rib and extended downward in the midaxillary line six cubic centimeters. The spleen was not palpable.

*The Abdomen.*—The abdomen was distended and occupying the right hypochondriac and epigastric regions existed a prominent oval shaped tumor-like mass the size of a small gourd, which on palpation felt elastic

and on percussion was distinctly flat. The flatness of the tumor mass was continuous above with that of the right lobe of the liver. No dulness existed in either flank, elsewhere the abdomen was tympanitic.

*Pelvis.*—The uterus was retroverted and fixed. The cervix was not lacerated. A hard mass was palpable in the right broad ligament, evidently connected with the uterus. A soft elastic mass could be palpated in Douglas's pouch. The rectum was normal.

The blood examination showed a red cell count of 3,780,000 whites, 35,400 hemoglobin 40 per cent. no parasites.

The urine was of a dark amber color, sp. gravity 1020, acid in reaction, contained bile stained hyaline and granular casts; no sugar, albumen, blood or pus was found.

Her temperature was never above 100 degrees.

The stools showed nothing from the normal except that they were clay colored, they contained no amoeba, or occult blood.

A careful study of the clinical symptoms and physical signs of this case led me to diagnose a right sided pleural exudate (probably pus) together with a sub-diaphragmatic abscess, or an abscess of the liver. The presence of the classical signs of a pleural exudate together with a well marked paravertebral triangular area of dulness on the opposite side, and a prominent, elastic tumor like mass in the right upper quadrant of the abdomen apparently connected with the liver, rendered such a diagnosis almost positive.

The history of a chill coupled with pain localized in the right side beneath the point of the ninth rib, could be due to either one of a number of conditions, the three most probable being a pleural exudate, sub-diaphragmatic abscess or primary liver abscess. But the explanation that seemed most probable in view of the symptoms and physical signs was a primary infection of the right pleural sac (suppurative pleurisy) with a subsequent infection through the lymph channels of the diaphragm and the formation of a sub-diaphragmatic abscess. I introduced a large sized aspirating needle just below the angle of the right scapula and removed eight ounces of a thick, greenish, bile stained pus. The day following Dr. John B. Harvie saw the case with me. He concurred in my diagnosis and agreed to operate at once. The plan was to drain the chest, and open the abscess, pointing as it was in the right half of the epigastric region. The doctor asked me first to aspirate the chest, so that the anaesthetic might be administered with the minimum risk.

I, accordingly, introduced the needle in the same position as above described and removed eight ounces of pus similar to that already obtained. The patient was then etherized and an incision made over the most prominent part of the mass which extended from the costal border to the umbilicus and a little to the right of the median line.

The knife entered a large abscess cavity apparently embedded in the enlarged right lobe of the liver, and more than a litre of greenish bile stained pus was evacuated, similar in every respect to the pus which was removed by aspiration, supposedly from the right pleural space.

Immediately after the evacuation of the pus the patient's condition

became so bad that it was deemed unwise to proceed with the resection of a rib for the purpose of draining the chest. She rallied however, and for forty-eight hours seemed very much better, she then rather suddenly passed into a state of collapse from which she did not survive. Autopsy September 14th, at 11 a. m.

*Summary of Autopsy.*—On opening the thorax the diaphragm on the right side was found at the level of the second rib. The right pleural cavity was practically obliterated and the right lung atelectatic and compressed into a small mass in the high interscapular region. The lung on section was deeply congested and the cut surfaces showed numerous bronchi exuding a creamy pus. The right pleura showed a recent fibrinous exudate. The left lung showed well organized adhesions on the outer surface both to the diaphragm and pericardium near the heart's apex. On section the bronchi contained a bloody mucous. The main branches of the pulmonary artery were unobstructed. The peri-bronchial lymph nodes appeared normal. The diaphragm on the left side stood at the level of the fifth rib.

*Heart.*—The pericardium apart from some old adhesions with the left pleura was normal. The heart measured twelve by ten by six centimeters, cavities not dilated. The tricuspid, aortic, and pulmonic valves were normal. The mitral-valve showed on its border near the base of one of the leaflets two well organized nodules. The left ventricular walls were flabby and measured one centimeter.

The spleen was pushed backward and downward by the enlarged liver. It appeared normal.

*Liver.*—The liver occupied most of the space of the thorax. It almost obliterated the right pleural cavity. There was however, no communication through the diaphragm between the liver and the right pleural space. Over the left lobe of liver the diaphragm fitted closely and a few delicate adhesions existed, but no abscess cavity or free pus was found. The liver was greatly enlarged and measured twenty-eight centimeters in length, thirty-two centimeters in width, and twelve centimeters in thickness. Directly beneath the right leaflet of the diaphragm and occupying the liver substance was found a large solitary abscess without well defined walls. Its upper limit was the right leaflet of the diaphragm resting at the level of the second rib. There was no free pus between the upper surface of the liver and the diaphragm. The abscess cavity was almost entirely confined to the right lobe of the liver which was entirely transformed into an enormous irregularly walled abscess. The left lobe of the liver was congested but otherwise normal. The gall bladder contained a small amount of yellowish bile, but no calculi. The adrenals and kidneys showed nothing from the normal.

The intestines were normal. There was an adhesion between the ileum and a mass located at the extremity of the right fallopian tube. The appendix was obliterated. The uterus appeared normal. The right fallopian tube was distorted and firmly bound to the posterior aspect of the uterus. On section this mass was found to be an old abscess cavity which contained a greenish colored softened debris, surrounded by a thick wall

of connective tissue. The left ovary was enlarged and also the seat of a small abscess containing creamy pus.

*Anatomic diagnosis.*—Abscess of the liver occupying the right lobe; chronic abscess formation in both broad ligaments. Jaundice, fresh fibrinous pleurisy, atelectasis of right lung; purulent bronchitis, streptococcus pyogenes infection of the liver. The pus from the abscess cavities of the ovaries was sterile.

## Remarks.

The autopsy showed this case to be one of extra-thoracic disease. A large solitary abscess of the right lobe of the liver almost obliterating the right pleural space by pressing up the right leaflet of the diaphragm, to the level of the second rib, and at the same time compressed the right lung upward and backward to a small mass in the high inter-scapular region, and the whole mediastinum over toward the left as evidenced by the displacement of the heart, and excited all of the classical symptoms of a right sided pleural effusion, together with a well defined paravertebral triangular area of dulness of the opposite side. So closely did this thin walled liver abscess mimic a pleural effusion that I was led to introduce a large size aspirating needle in the usual position for aspiration of the pleura, i. e., just below the angle of the scapula in the seventh intercostal space, and was gratified to find and remove eight ounces of pus. The presence of the above described symptoms together with such positive physical signs of a pleural effusion, and the results of the aspiration, led unhesitatingly to the diagnosis of a right sided suppurative pleurisy and either a sub-diaphragmatic abscess or an abscess of the liver. The autopsy however, showed that the diagnosis of suppurative pleurisy was erroneous and that I had simply passed my aspirating needle through the right leaflet of the diaphragm into the abscess cavity of the liver from which I withdrew the pus.

In view of the autopsy findings this case proves that the presence of a typical paravertebral triangular area of dulness may as has been shown by Smithies and Ewart be due to extra-thoracic disease. It also shows that while the Korányi-Grocco sign is of great diagnostic value in the recognition of pleural effusion, it is by no means pathognomonic. In closing I would also draw your attention to the fact which I have repeatedly verified, that in massive pneumonias a dulness over the lower spine exists, producing an area of dulness parallel to the spine but not of a triangular shape. Korányi in a recent article on

this subject also refers to this fact, and emphasizes the distinction between it and the triangular area of dulness so characteristic of pleurisy with effusion.

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# STATE OWNERSHIP OF THE HEAD WATERS.

*Read at the Second Annual Meeting of the Third District Branch of the Medical Society of the State of New York, held at Troy, October 27, 1908.*

By CLARK G. ROSSMAN, M. D.,
Hudson, N. Y.

The source of supply of potable water to many of our cities and towns has within almost a generation gone through the evolution of wells, the near-by stream or lake at first unfiltered, then as pollution increased, filtration.

Some with greater foresight or other compelling cause, where distance or geological conditions would permit, have obtained a less contaminated water from a thinly-inhabited or unpopulated watershed.

Municipal water supplies are as a rule purified sewage of a greater or less concentration, for we are bound to use contaminated water so long as the individual is allowed to fertilize the fields or truck garden with human excreta, or is permitted to continue the use of the privy which overhangs or drains into the small stream, or the village is permitted to contaminate the creek which flows near by, through its direct drain or seepage from privy vaults and cesspools, or the neighboring city is permitted to cast out its untreated sewage to further defile the water for other people to drink.

With continued growth of cities and consequent more imperative demands for larger water supplies, it will become in-

creasingly more difficult to obtain even an approximately safe drinking water.

The question of potable water then becomes one of purification of sewage, its treatment and disposal.

It can only be avoided by municipal, state or national ownership of sufficient unpopulated drainage area of the head waters, thus securing an uncontaminated drinking water, *originally pure and still pure, not nearly pure.*

From 1872 to 1905, the city of Hudson drew its water supply from the Hudson river directly in front of the town. The water was purified by slow sand filtration. From 1899 to 1906, there were reported an average of sixty-two cases of typhoid fever per 10,000 population. To this should be added eight deaths per 10,000 from diarrhea, and some deaths from malaria, as both occurred during the months of January, February and March, and among adults.

In 1906 a gravity supply was obtained from a thinly-populated rural watershed, mostly upland pasture and woodland.

This reduced the number of cases of typhoid fever originating in the city to four per 10,000. Polluted ice, and some questionable milk probably accounted for some of these.

So-called "winter cholera" and malaria in winter have disappeared.

As Hudson is not financially able to procure absolute distance protection about the feeders of its water supply, much less absolute ownership of its watershed, it therefore of necessity must rely upon State Board of Health "Rules and Regulations for the Protection from Contamination of Public Water Supplies." This legal protection is a very great safeguard, but cannot guarantee absolute protection. The water is still liable through carelessness or negligence to pollution. It is this unintentional pollution which is most difficult to prevent. Thus a few weeks ago when a case of typhoid fever occurred in the watershed with an overflowing privy only 150 feet distant from one of the tributaries to the water supply, the experiences of Plymouth, Ithaca and Butler were called vividly to mind.

This is what *nearly pure water* signifies.

A realization that natural resources were being needlessly wasted was first brought home to us by the impending wood shortage. The first problem opened the eyes of the people to the condition of our natural resources as a whole. It was seen that our national existence depends upon reform in our methods

of using the natural riches of the land; that it was time to set our national house in order, to take stock of our resources, and to lay plans for their wiser use in the future.

"The Inland Waterways Commission was appointed by the President in March, 1907. It reported to the President February 3, 1908, and on February 26th, the President sent to Congress a message transmitting the report, approving its findings, and urging that its recommendations be enacted into law. The work of the Commission had developed the wide-reaching importance of the waterways problem, and had taken up the relation of the waterways and water supplies of the country to all of the natural resources affected. It brought into prominence the great need of conserving not one, or a few, but all of the natural resources of the country."

"At the suggestion of the Inland Waterways Commission, in order to fully consider the far-reaching problems of conservation, the President invited the Governors of the States and Territories to a conference in Washington last May to consider the whole question. Men of national prominence, familiar from experience in business life with the four great classes of resources—water, forests, soil and mines—were also invited to this conference."

"As a result of the opinions expressed at this conference the President, on June 8th last, appointed the National Conservation Commission, and organized this Commission into four sections to consider the four great classes of resources—water resources, forest resources, resources of the land, and mineral resources—and advised that

"The work of the Commission should be conditioned upon keeping ever in mind the great fact that the life of the nation depends absolutely on the material resources, which have already made the nation great. Our object is to conserve the foundations of our prosperity. We intend to use these resources; but to so use them as to conserve them. No effort should be made to limit the wise and proper development and application of these resources; every effort should be made to prevent destruction, to reduce waste, and to distribute the enjoyment of our natural wealth in such a way as to promote the greatest good of the greatest number for the longest time."

"The Commission must keep in mind the further fact that all the natural resources are so related that their use may be, and should be, co-ordinated. Thus, the development of water

transportation, which requires less iron and less coal than rail transportation, will reduce the draft on mineral resources; the judicious development of forests will not only supply fuel and structural material, but increase the navigability of streams, and so promote water transportation; and the control of streams will reduce soil erosion, and permit American farms to increase in fertility and productiveness and so continue to feed the country and maintain a healthy and beneficial foreign commerce. The proper co-ordination of the use of our resources is a prime requisite for continued national prosperity."

Our *Mineral Resources,* once gone, are forever gone. Coal and iron at the present rate of consumption are likely to be exhausted within the century. We will then be compelled to look for some other source of enegry to create prime movers. At present the apparent source is electricity generated by water power—not only the vast water powers, but all the little waterfalls and storage basins throughout the country.

The *Land* is a capital which can be drawn upon through all the future, but the amount of the drafts that will be honored depends upon the care and intelligence given to its cultivation. Yet except over an insignificant area soil destruction and soil exhaustion are the rule.

Stripping the forests from the hillsides has rendered hundreds of thousands of acres in the New England and Middle States and the South unfit for tillage, because floods have followed clearing, scouring the slopes with gullies and smothering the bottoms with sand and choking the navigable streams.

*Forest Resources.* At the present rate of cutting the timber lands will be exhausted in about thirty years. Mr. Whipple places the exhaustion of timber in this state at about twenty-three years.

The formation of New York is such that most of the water comes from the great upland plateau, extending from the Adirondacks to the foothills of the Alleghanies. In such a state it is especially imperative that the forests be preserved in sufficient quantity else more of our agricultural lands will be depleted to such an extent that it will not be practicable to farm them.

Therefore, for the benefit of agriculture alone, to say nothing about the question of a timber supply, which is so imperative, we should not sit quietly by and see our forests wiped away and the interests of our country ruined beyond repair.

It may surprise you to know what this state has done in the

way of reforestration. Mr. Whipple states that last year there were planted in the waste lands of the Adirondacks 1,100,000 pine trees. New York state has planted as many trees as all the other states and national government combined. We have ten or twelve acres of tree gardens where Germany has fifteen or twenty tree gardens of 200 acres each!

Coal cannot be reproduced, iron cannot be reproduced, but the forests can be reproduced. And if you preserve the forests by planting and careful cutting you will have water courses, and your water courses will save the farms.

*Water Resources.* "We enjoy water mainly in three forms—as an article of use, as a source of power, and as a means of transportation. Habitually we regard our supply of water as inexhaustible, like the air. And it is true that our folly can never prevent the larger movements of water upon the earth; the rains and snows are controlled by the great cosmic forces by geographical conditions over which we have but slight control. But while we can exert only a small influence over the supply of water in general, we can exercise a decided influence upon the form in which the supply reaches us. Wherever there are hills and valleys there are watersheds and water courses, and nothing that we can do can prevent the rains from falling upon the hills, running down to the valleys, and passing off in streams and rivers into the ocean; but we can change the speed of water flow in the drainage basins. If we cut the forests clean on the hillsides we are removing a check which otherwise retards the water, with the result that the rains run off quickly into the rivers, swelling them violently and bringing floods. Where the slopes of drainage basins have been cleared in this way the floods have been disastrous; and the floods are followed by drought, because the hills, which are naturally the reservoirs of the streams, have run dry. France has a saying, "No forests, no rivers," just because this is so.

By interfering in this way with the natural regimen of the streams, we deprive ourselves of water in all three of its useful forms; we dry up the springs, we render stream flow so inconstant that its availability for power is seriously impaired or even ruined, and we destroy our water courses for navigation purposes by choking them with the silt washed down by the floods.

Of all the wastes of natural resources, we can afford the waste of water least of all. Yet principally by the rash destruction of the natural forest reservoirs we have already allowed stream

flow to get beyond our control. Enormous damage has been done, and is repeated year after year, simply because we have stripped the forests from the hills."

In addition to the necessity of water for irrigation and inland navigation, it is unquestioned that it will have to be our final resort as the source of energy.

Sewage purification was spoken of at the conference. But little or no attention was given or seems to have been planned for concerning pure water as a conservator of public health. During the census year 1900 there were 35,379 recorded deaths from typhoid fever, representing a probable decrease in "vital assets" during the year of about $353,790,000.

This loss is due to but one of the water-borne diseases.

Consideration should also be given to the fact that for each death from typhoid fever there are three or four deaths, at least, from diseases not now recognized as being water borne, coincident with this same impure water, particularly certain infantile diseases, pulmonary tuberculosis, and pneumonia.

This strange fact may indicate that diseases other than those usually recognized as water borne may be thus conveyed, or that polluted drinking water lowers the vitality so that diseases otherwise successfully resisted gain a foothold.

Aristotle said, "The greatest influence on health is exerted by those things which we most freely and frequently require for our existence and this is especially true of water and air."

An increasing percentage of our population, now about fifty per cent., is supplied by community water systems.

Certainly these facts entitle drinking water to more than cursory consideration by the National Commission of Conservation.

The New York State Board of Health has ascertained that ten cities within this state have reduced their death rate from typhoid fever 53.4 per cent. as a direct result of improved water supplies, mainly the more efficient treatment of polluted water.

During 1907 there were in New York state 1,668 deaths from typhoid fever, indicating about 20,000 cases of this one water-borne disease. With a pure water supply and efficient sewage purification there would be no case of typhoid fever.

Ownership of head waters by the state or nation would insure an abundance of pure water, as well as furnishing power, conserving the soil and maintaining navigation and irrigation.

That part required for municipal use could be apportioned

according to the needs of the respective cities, and if need be made an asset.

Near the city of Hudson, in the territory from which its water supply is drawn, there are seventy-five square miles of head water, composed of upland pasture and woodland, but thinly populated, about fifteen per square mile; and of an assessed valuation of about $750,000. This head water is capable of developing 37,500,000 gallons daily, a sufficient per capita supply of 100 gallons for a population of 375,000. Why should the small town of Hudson be able to prevent other municipalities from sharing in this abundance.

New Jersey has purchased in the last four years 10,000 acres of land to be maintained as state forest reserves. It intends to purchase some five or six thousand acres this year.

New Jersey proposes to go on in the work of reforestration and forest conservation with the intention of making the state forests play grounds as well as a source of profit. Why not also sources of pure drinking water?

And should not the conservation of health, difficult as it is to compute in dollars, be a national asset worthy of more than passing consideration by the National Conservation Commission?

(Acknowledgment is made of indebtedness to the forest service for much of the material which has been used in the preparation of this paper, also to our State Board of Health and standard works on engineering.)

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## Clinical and Pathological Notes

*Report of a Case of Acute Pancreatitis. By* T. J. Flynn, M. D., *New York City.*

As an introduction to the report of this case, I desire to state that the object is to present a clinical picture, not only of an acute inflammation of the pancreas, but to show that sub-acute conditions undoubtedly exist.

Patient: L. E. B., forty-one years, widow, nurse, complains of repeated attacks of acute epigastric pain and vomiting.

Family history: Father died of pneumonia; mother died of post partum hemorrhage; two brothers and sisters alive and well.

Past history: She missed menstruation last May but has menstruated regularly ever since. She never had any illness until these attacks came on.

Present history: The first time she was taken ill was three years ago, at which time she had a fainting spell. She had no pain or vomiting, and later was told she had heart trouble.

One year later while on a case, she was taken with severe pain in the stomach associated with vomiting, but a hypodermic of morphia, grain ¼, cleared up the attack in several hours. This attack was very severe while it lasted, and she was troubled with epigastric tenderness for some time afterwards, but was able to keep on with her work. She had three attacks later, similar to this; but she never had to give up her work altogether.

Last February she was taken with the first severe attack of pain and vomiting, the former lasting one day. On account of persistent vomiting, she was compelled to stay in bed three weeks. Following this, she had three or four slight attacks of pain and vomiting, the pain at all times being localized in the epigastrium, and of a sharp and colicky nature.

I saw her for the first time June 29th. She was sitting up, evidently suffering intense pain. Palpation and inspection of upper abdomen showed marked distention and tenderness throughout the epigastrium, although the greatest point of tenderness was in the region of the gall bladder. Up to this time she had not vomited. Thinking she was suffering from acute gastric dilatation, I gave her morphiae sulphatis, grain ss, and atropiae sulphatis, grain 1/100, which gave her relief from pain and a good night's rest. The following morning her pain was practically gone, but she started to vomit, which kept up despite medical treatment and gastric lavage. On July 3rd vomiting still persisted. I sent her to St. Luke's Hospital, where a diagnosis of gastric ulcer was made. Three examinations of gastric contents showed thirty-four per cent., twenty-two per cent. and eighteen per cent. hydrochloric acid. Blood, by benzidine test was found twice. Vomiting and epigastric tenderness persisted, the latter always greater in region of pylorus. Her pulse never reached 100, and her highest temperature was 99.6, and as low as 97.8. Vomiting was not dependent on food, and I do not believe it was due to morphia. Not any time did her urine contain sugar or albumen. Repeated blood examinations were negative. In three weeks she was able to return to her home where she con-

valesced rapidly, and was entirely free from any stomach symptoms; she was able to eat and drink everything, except milk, without distress.

On Sunday evening, August 30th, about *four* hours after eating her dinner (the usual time these attacks came on), she was suddenly seized with the same severe pain, only worse than she had ever experienced before. This time it was associated with vomiting from the onset. The greater part of the vomited matter being undigested. On account of her intense suffering, I gave her morphiae sulphatis, grain ss, and atropiae sulphatis, grain 1/100, by hypodermic, with no relief. After twenty minutes gave her morphiae sulphatis, grain ¼, and atropiae sulphatis, grain 1/200. This, again, did not relieve the pain or vomiting. I washed out her stomach, but vomiting persisted, bringing up more undigested food. I examined her abdomen after the first hypodermic. No distention was present, but extreme tenderness in the region of the gall bladder. She complained of pain in the back. The pain, whilst constantly present, was paroxysmal. I was unable to control the vomiting. At the end of an hour, her mind still being distinctly clear, I gave her another hypodermic of morphiae sulphatis, grain ¼, and atropiae sulphatis, grain 1/200, making altogether morphiae sulphatis, grain 1, and atropiae sulphatis, grain 1/50. She quieted down somewhat, but, as I learned the next morning, this lasted but a short time. Vomiting and pain persisted all night. The blood count taken that night showed 15,700 white blood cells, and seventy-eight per cent. polynuclears.

The morning of August 31st, I saw her and examined the material she had vomited, which consisted of thick bile, stained mucus, and was entirely free from blood. The epigastric pain and vomiting were still present and as bad as ever. In addition to this she complained of severe pain in both shoulders. The tenderness and rigidity had increased over the entire abdomen. She presented marked evidence of shock, her pulse at that time being 140, of poor quality, and her temperature 100.8. I ordered her to the hospital, where on her admission a blood count was taken showing 31,000 leucocytes, and ninety-four per cent., polynuclears. Thinking she was suffering from a perforated gastric ulcer, with a possibility of its being a pancreatitis, an immediate operation was decided upon. This was done under local anes-

thesia, novocain and adrenalin being used. Dr. W. S. Schley operated.

An incision was made from the ensiform cartilage to the umbilicus. The abdominal wall was found thickened. The abdominal cavity was found filled with a turbid red fluid, not clotted. The omentum contained about thirty areas of fat necrosis from four to six millimeters in diameter. The visceral peritoneum was oedematous; but the transverse colon, in the region of the head of the pancreas, was three times its normal size, and of a gelatinous consistency. The gall bladder was normal in size and contained two small stones. The ducts were free, including the ampulla of Vater. The head of the pancreas was intensely congested and swollen, very tender, and, as far as could be made out, no calculi were present. No rupture of the pancreas was evident; stomach and intestines were free from perforation. Diagnosis having been made, the abdomen was closed without drainage. Vomiting persisted several days, but under lavage and starvation diet, the patient gradually recovered. Her temperature was never above 100 degrees, nor the pulse above 150, both having been taken after the laparotomy.

It is interesting to note that despite the presence of fat necrosis in the omentum, the wound healed without showing any evidence of fat necrosis of subcutaneous fat. The patient is at present perfectly well, and eating without distress.

*Summary of symptoms:* Outside of the sudden agonizing epigastric pain, no symptom caused more distress than the persistent vomiting. This was very annoying, even in her last attack, and previous to her having received any morphia. The vomiting would persist for days after the pain had subsided, and when she was not taking morphia. The vomiting was not dependent on food. Gastric lavage and medicines gave no relief. It, apparently, was dependent on the condition of the pancreas; and as the inflammation subsided, so did the vomiting. Tenderness and rigidity were found throughout the epigastrium, the former more marked in the region of the gall bladder. She was not jaundiced at any time. The attacks would come on four or five hours after her principal meals. Temperature gave no aid. The pulse never went above 100, except on the morning when she was sent to the hospital for the second time; and this was the first time, when she presented any signs of shock. The blood

count was of the greatest importance in differential diagnosis, and particularly so in conjunction with other symptoms.

The attack on June 29th and the previous ones, could hardly be called acute. The pain, while of the same character, never lasted longer than twenty-four hours, and during a number of attacks, not longer than twelve, and were not at any time, as severe as during the last attack. She never presented signs of shock, and, as a rule, was able to return to work after a day's rest. The character of the pain was the same during all her attacks.

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## Editorial

"Symptoms," answered the surgeon, "are not always regular nor constant. I have known very unfavourable symptoms in the morning change to favourable ones at noon, and return to unfavourable at night. Of wounds, indeed, it is rightly and truly said, *Nemo repente fuit turpissimus.* I was once, I remember, called to a patient who had received a violent contusion in his tibia, by which the exterior cutis was lacerated, so that there was a profuse sanguinary discharge; and the interior membranes were so divellicated, that the os or bone very plainly appeared through the aperture of the vulnus or wound. Some febrile symptoms intervening at the same time (for the pulse was exuberant and indicated much phlebotomy), I apprehended an immediate mortification. To prevent which, I presently made a large orifice in the vein of the left arm, whence I drew twenty ounces of blood; which I expected to have found extremely sizy and glutinous, or indeed coagulated, as it is in pleuretic complaints, but, to my surprize, it appeared rosy and florid, and its consistency differed little from the blood of those in perfect health. I then applied a fomentation to the part, which highly answered the intention, and after three or four times dressing, the wound began to discharge a thick pus or matter, by which means the cohesion—but perhaps I do not make myself perfectly well understood?" "No, really," answered the lieutenant, "I cannot say I understand a syllable." "Well, sir," said the surgeon, "then I shall not tire your patience; in short, within six weeks my patient was able to walk upon his legs as perfectly as he could have done before he received the contusion."

HENRY FIELDING.

*The History of Tom Jones.*

**The Prevention of Blindness Due to Ophthalmia Neonatorum.**

In January of this year the New York Association for the Blind issued its pamphlet entitled "Prevention of Blindness, No. 2,—Children Who Need Not Have Been Blind—Prevention a Public Duty." The writer of this pamphlet estimates that one-fourth of the blind in our public institutions for victims of this affliction, lost their eyesight in consequence of having had ophthalmia of the new born —neonatorum. It was twenty-eight years ago that Credé showed that the dropping of a single drop of a two per cent. solution of the nitrate of silver in each of the eyes of a child, during or immediately after its delivery, constitutes a sufficient prophylactic against this dreadful disease. While Credé was investigating the matter and before his publication of the conclusions resulting from such research, the use of the method just described had reduced the cases from 7.4 to 0.5 per cent.,—the one single case, among the 200 births in the Maternity Hospital, where the investigation was made, furnishing the last named percentage, having been that of a child upon whom the method had not been used. Further on in the pamphlet under consideration, the use of two drops of a one per cent. aqueous solution of silver nitrate is recommended, rather than Credé's one drop of a two per cent. solution, and this latter dosage better represents the consensus of opinion, among competent judges, at present.

It seems necessary to make a step from the sublime to the contemptible before estimating, in money, the value of a sense, especially that least dispensable one of sight. Few of us really sympathize with the cynic who maintains that the road to the human heart leads through its owner's purse. But the shortest route to his *attention* often takes that course. When those who are blind, because they had the disease in question—that of the new born—are all dead, those of them who have been under the care of the State of New York will have cost our state more than six millions of dollars. And all of that amount might have been saved by the expenditure of less than thirteen dollars for drugs and less than a day of time, as an aggregate for all the cases together. Breathes there a man with soul so dead who wouldn't work three eight-hour days and invest thirteen dollars to gain more than six millions of dollars—to say nothing of the by-product of saving more than six hundred persons from incurable blindness?

This is an age glorious for revivals and the one for the elimination of unnecessary blindness is already well started and vigorous. The medical profession, more than any other kind of citizens, is able to promote this most philanthropic work. The committee publishing the pamphlet above referred to, classifies the methods for the prevention of blindness, due to ophthalmia neonatorum, as educational, legislative and co-operative. Inasmuch as this present writing is most apt to reach the attention of physicians, it behooves its writer to consider mainly how physicians may best secure education, legislation and co-operation in this connection. The three sub-divisions of this function are closely related. It is a truism that nobody else can so well educate the community in matters of health or disease as can the collective physician. Since legislation is ultimately controlled by the electorate, which is almost identical with the community, the medical profession is, by the same token, most influential as concerns that second class of reform methods. "Co-operation" is the most important of all. In it the general practitioner can be a leader but it ought to include all kinds of persons. Midwives deliver a large proportion of the children of immigrants. Very many midwives are filthy. It is they who hinder, more than does any other class, the obliteration of this frightful plague which causes so much suffering and wholly unnecessary expense.

Education, in the substantive sense, is an acquaintance with facts, or the accomplishment of such acquaintance. To educate is to make known to those, whom it is sought to instruct, such facts as are deemed worthy of their acquisition. The means for that are, of course, infinite in number and variety. The much used phrase "campaign of education" is susceptible of almost universal application. Happily for those who live in this age and country, the organization of many kinds of schools is being progressively advocated and achieved. Everybody is interested, whether consciously or not, in the prevention of blindness. They may not be tax-payers but there is some risk, however remote, of their becoming victims of the communication of the poison peculiar to this scourge, although it be only indirectly. Legislation might well provide for the teaching, in all schools, the prevalence of the blindness resulting from ophthalmia neonatorum, and the simplicity and ease of its prevention; which prevention consists primarily and almost essentially in the instilla-

tion of two drops of a one per cent. solution of the nitrate of silver into each eye of each new-born child.

However much education might cost, it would need to cost more than $150,000 a year, or it would cost less than the resultant, consequent saving in taxes. In this connection, co-operation is of prime importance as affecting both education and legislation. The people are awakening to the fact that legislators may be compelled to enact the will of their constituents or suffer the alternative loss of their so-called representative positions. Less than a quarter of those senators who opposed the will of the people of this State last year, as that will was represented by our Governor, in opposing gambling, have been permitted to return to the legislature.

CHARLES M. CULVER.

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## Scientific Review

### EXPERIMENTAL AND CLINICAL STUDIES ON THE CURATIVE ACTION OF LEUCOCYTE EXTRACTS IN INFECTIONS.

PHILIP HANSON HISS, JR. and HANS ZINSSER, contribute the results of investigations in the *Journal of Medical Research,* Volume XIX, pages 323 to 469.

Studies reported in four papers were inspired by an observation made in the laboratory under the direction of Hiss to the effect that the phagocytic power of leucocytes from infected persons was greater in some cases than that of the leucocytes of normal individuals. This led him to believe that aside from, and independent of the variations in opsonic power, which is a property of blood serum, there might be variations in the phagocytic power of the leucocytes.

This developed the conception in his mind of a cellular immunity as distinct from a serum or plasma immunity, and in casting about for the explanation, he arrived at the conclusion that in part, this property resided in the leucocytes having phagocytic power, and that it was associated with the cell elements having the ability to destroy the toxic products which are liberated when the leucocytes engulf and kill pathogenic bacteria.

This, in time, led him to consider the possibility of aiding the

leucocytes by furnishing the body with these cell elements, by the injection of the extracts of leucocytes derived from another animal. He argued that these cell elements are not given up to the plasma from the leucocytes under conditions existing in the blood, and that extracts would, therefore, be more efficacious than would be the living leucocytes if similarly injected. The extracts would likewise have the advantage of more rapid absorption, and of greater diffusibility, and thus give the cells of highly specialized functions a more rapid protection from the attacks of the toxins set free through the disintegrations of bacteria in the body.

He assumed that the source of other immune bodies, antitoxins, amboceptors, etc., is from cells, but that they are given off into the circulating blood; whereas, in the case of the substances of which he has conceived, he believes they are retained in the cells while in the body.

His plan of operation became, therefore, one to introduce into the infected animal or man the substances derived from the chief cells, or all the cells of an exudate in another animal in the most available and diffusible form. Such substances, if they became free from the cells by extraction, might serve to neutralize poisons in the blood, or might alone or in combination with bodies already present in the blood act deleteriously on the bacteria, and thus protect and augment the activities of the flagging leucocytes, by supplying them with their own weapons in the fight against the invading organisms.

*First paper: The Curative Influence of Extracts of Leucocytes Upon Infections in Animals.*

The first paper deals with experimental injections of extracts of leucocytes from normal animals into animals infected with the specific bacteria of those diseases in which the so-called endotoxins are the assumed bacterial poisons.

The methods employed were as follows: Rabbits and dogs, but chiefly the former, were used as the bases of supply of leucocytes. The latter were usually obtained by the double pleural inoculations with aleuronat, and after twenty-four hours, the exudate obtained was quickly centrifugalized, and the serum decanted. After the cells were washed in salt solution, they were directly added to the extracting fluid, which equaled in amount the volume of the serum decanted. In most instances, the extracting fluid was distilled water; but at times the usual

physiological salt solution was used. Both the clear supernatant fluid, after extraction and settlement in the cold room, and the fluid containing some of the bodies of the leucocytes were used in this work.

In the first paper, by Hiss, are the results obtained when extracts of leucocytes were administered to animals in which there had been artificially induced staphylococcus, typhoid, pneumococcus, streptococcus and meningococcus infections.

Staphylococcus Pyogenes Infections.—Analyzing the series of experiments in which animals subcutaneously infected with staphylococcus pyogenes aureus were treated with extracts of normal rabbits leucocytes, it is stated that the animals which had received rapidly fatal doses subcutaneously could be saved by treatment with extracts even in small doses, especially when these were given intraperitoneally. When intravenous infections were practised, the results were not so favorable.

Typhoid Infections.—In the case of the rabbits infected with virulent typhoid cultures, the administration of the extract appeared during the first few hours to aggravate the symptoms, only to be followed by a very rapid beneficial effect, and usually, recovery. The author believes, that the conclusion is unavoidable, that the leucocyte extracts have a markedly beneficial modifying action on the course of typhoid infections or poisonings in rabbits.

In view of the well-known hypo-leucocytosis in typhoid infection in man, with the indication of mononuclear leucocytic activity, the author questions a little, which type of leucocytes in the extracts may be responsible for the results obtained; but he believes the polymorphonuclear cells play an important part.

Pneumococcus Infections.—Some of the first work done with animals was that on the pneumococcic infections; but the early results were not satisfactory, and not until leucocyte extracts had been used in human pneumococcus infections with excellent results did the author return to animal experimentation.

There are several points of interest in the results of the use of leucocyte extracts in infections with this bacterium. In a series of animals in which the infection was benign, the extracts injected subcutaneously, produced veritable crises in the course of the symptoms, and the author questions whether it might not be logical to suppose that there may be times during an infection, when leucocytes having emigrated from their normal environ-

ment, and being under adverse or unusual conditions, such as probably exist in the exudate in the lung during pneumonia, may be disintegrated in numbers, and by a rapid neutralization of poisons in their vicinity, or by the reabsorption of their products into the general circulation, bring about the abrupt terminations of infections known as crises; or at other times, by their cyclical destruction give rise to the heretofore inexplicable swinging temperatures so common in certain septic conditions.

During the work on the pneumococcus infections in animals, the author found that in making the extracts, the essential elements for the treatment of infections were soluble, and to be found largely in solution in the fluid used for extraction. After the second extraction of the cells, the detritus of the latter contained none of the toxin neutralizing substances, and those in the second extractions were weaker than those in the first. Most of the curative and protective bodies are therefore in the aqueous portion of the extract.

Comparisons of the results with extracts with those obtained by the treatment of infections of rabbits with rabbit anti-pneumococcic serum, showed the extracts to be far superior.

In the matter of the use of extracts of immune leucocytes, or of those from immunized animals, as compared with extracts of leucocytes from normal animals, the author is not prepared as yet to express an opinion. Special studies on this phase of the subject are under way.

Heating the extracts for one hour at 60° centigrade decreased the curative value of the extracts, but did not destroy it.

The use of living leucocytes in normal salt solution had absolutely no effect.

In a special series of tests of the virulence of the culture of pneumococci, which he had been using in these tests, it was shown that the animals had been saved generally from about twenty times the fatal dose.

Dogs' leucocyte extracts used in rabbit infections appeared to do more harm than good.

Summarizing the work on rabbits infected with pneumococci, the author concludes, that in these animals an infection surely fatal in untreated rabbits, becomes significantly modified in the treated animals, even if this treatment be delayed many hours. Even when the infecting dose is doubled, the treated animals live much longer than the controls.

Streptococcus Pyogenes Infections.—The results obtained in rabbits infected with streptococci were equally favorable with those already noted in other infections. There was a tendency on the part of the culture used to produce localized infections in the joints in the animals kept alive by the use of the extracts.

Meningococcus Infections.—In the animals severely infected with meningococcus, the following comparative results were obtained by the use of normal leucocyte extracts, immune leucocyte extracts and of immune rabbit serum.

All the controls, eight in number, died with an average life of twenty hours. Of the animals treated with normal or immune leucocyte extracts, thirteen in number, nine recovered and four died, *i. e.,* over seventy per cent. recoveries. Treatment was begun usually five hours after inoculation, but in some instances up to twenty-four hours. Controls at times were dead before treatment of the other animals with extracts, was instituted.

Of the animals receiving the immune serum fifty per cent. of those treated in five hours died; while one hundred per cent. of those treated after twenty-one hours died. The percentage of recoveries in these animals was but twenty per cent. The doses were large and the animal from which the serum was obtained was highly immunized.

It was found in these tests that the extracts of leucocytes from artificially immunized animals had apparently a stronger and more favorable effect, than did those made from the cells from normal animals.

*Second paper: The Precipitation of Bacterial Extracts by Extracts of Leucocytes.*

As Kraus and Levaditi had apparently shown that the specific precipitins might possibly originate in the leucocytes, the authors were encouraged to ascertain whether the action of the leucocyte extracts in infections might not be in part at least, one of precipitation of the endotoxins of the infecting organisms.

The bacterial extracts were made with sterile distilled water or salt solution, at the body temperature, and the whole mass filtered through Berkefeld filters. The leucocyte extracts were prepared as for the other expriments. Mixtures of the two were made and the results noted.

There were many irregularities in these tests, and numerous unforeseen difficulties. Controls of the extracts showed spontaneous precipitation in some instances. However, most of

these troubles were finally eliminated, and the authors conclude as follows:

"I. That the precipitates are formed when aqueous or saline leucocyte extracts are added to aqueous or saline extracts of bacteria.

"II. That these precipitates are not merely indications of the insolubility of proteid or other substances, due to adventitious circumstances under the given experimental conditions, but are reactions not unlike other immune reactions, and are due to a combination of leucocytic with bacterial substances.

"III. That the precipitates formed, while varying in quantity with different species of bacteria, are probably not to be regarded as specific, and the differences in the quantities of precipitates may possibly be indications of the more complete liberation of bacterial cell contents in the case of some organisms than in that of others."

*Third paper: Observations on the Mechanism of Protection by Leucocyte Extracts.*

The authors endeavored to ascertain, if possible, whether the manner of action of the leucocytic substances could be determined by a controlled study of the phenomena occurring after intraperitoneal infections in the presence of leucocyte extract.

Petterson had shown that leucocytes and their extracts possessed distinct bactericidal properties for the various strains of Bac. Proteus; but had shown that the same was not present for the cholera and typhoid bacillus.

The authors believed from their observation of cases of infections, both artificial in animals and natural in man, in which the extracts had been administered, that the good results were to be ascribed to the neutralization of toxins, rather than a reduction of the bacterial infection.

For the presentation of the scope and the results of the authors experiments it will be sufficient to quote some of their conclusions on this aspect of the subject.

"I. Aqueous extracts of rabbit leucocytes, intraperitoneally injected, exert marked protective influence upon guinea pigs intraperitoneally infected with Vibrio cholerae Asiaticae and Pneumococcus.

"II. Observations upon the intraperitoneal phenomena, after injection of bacteria and leucocyte extracts, tend to show that the leucocytic substances exert but slight, if any, bactericidal action,

and do not, of themselves, inhibit to any considerable extent the development of the bacteria used for the experiments.

"III. Similar observations show that the leucocyte extracts do not, to any marked degree, directly increase intraperitoneal phagocytosis.

"IV. The more rapid appearance and greater numbers of polynuclear leucocytes in the exudates of animals receiving leucocyte extract, seem to indicate a possible neutralization by such extract, of negatively chemotactic products.

"V. In the absence of bactericidal, bacteriolytic or phagocytosis-stimulating effects referable to the leucocytic extracts, the favorable influence, which these substances were repeatedly shown to exert upon the temperature and general condition of the animals and upon the ultimate outcome of the infections, is probably dependent upon a faculty of neutralization possessed by the leucocyte extract toward certain toxic bacterial products."

In brief the leucocyte extracts appeared to act as neutralizers of certain of the bacterial toxins, thus confirming the authors' observations on the clinical results.

*Fourth paper: The Curative Influence of Extracts of Leucocytes Upon Infections in Man.*

A. Epidemic Meningitis.

Twenty-four cases of epidemic cerebro-spinal meningitis in man were treated subcutaneously by them, or under their direction, with leucocyte extracts, of their own preparation.

The authors' considerations of their results seem so fair, free from prejudice, and so concise, that they cannot be abstracted greatly with any degree of satisfaction.

"Considered individually, the separate cases show much that is of importance both for the estimation of actual beneficial results and for the elucidation of the manner in which such results are probably produced."

"Almost without exception there was an improvement, often more marked after the first injection than after later ones, in those symptoms which depend, largely, in this disease upon the central nervous system: vomiting, delirium, stupor, and hyperesthesia were usually diminished or entirely allayed after one or two administrations of quantities ranging from five cubic centimeters to twenty cubic centimeters. The very promptness of the reduction of these symptoms makes it possible to exclude their having, in these cases, depended upon anatomical changes in or

exudate pressing upon the nerve centers. This leads to the logical inference that underlying conditions were usually those of toxemia."

"Marked reduction in the temperature following injections was noticeable in many of the cases. In some of these cases, however, the diminution of the fever was a temporary phenomenon, limited to the twenty-four or forty-eight hours immediately following the injection, a fact which also argues strongly for the idea of poison neutralization."

The authors state that any attempt to draw definite statistical conclusions from a small series of cases of a disease like epidemic meningitis is fraught with danger and difficulties. They believe that the above analysis of the effect upon the symptoms, and the following statistical study of the cases seem to argue for a favorable influence of leucocyte extract treatment upon the course of the disease.

"Statistically considered, out of the twenty-four cases two were discharged against advice, and before the outcome of the disease could in any way be foretold. Although improved somewhat at the time of discharge, they have been lost sight of and cannot fairly be included in any statistical summary. Of the remaining twenty-two cases fourteen were discharged cured and without sequelae. Eight cases died. Calculated in percentages, this yields the result of 63.6 per cent. cured to 36.4 per cent. fatal."

"Reviewing the individual cases a little more in detail, it seems of interest to state that fifteen of these cases were under fifteen years and, of these, three died, leaving eighty per cent. of recoveries with no sequelae. Of the cases over fifteen years, there were seven, five of which died. This result may have been due to the fact that several of these adult cases were in extremis when admitted to the hospital. In spite of this, under treatment some of these cases showed a marked improvement and did not die before twenty-seven, seven, thirty-eight, eleven, and twenty-five days after treatment was begun. Of the children that were treated, but who died, one survived seventy-nine days, one sixty-two days, and one, a baby of seven months, twelve days after treatment was instituted."

It is also of interest to note that of seven cases in which treatment was begun subsequent to the seventh day of the disease, there were one hundred per cent. recoveries without

sequelae. Treatment had not been begun until the lapse of seventeen, twenty, forty-seven, forty-one, fifty-three, thirty-nine and eight-two days after the development of the first symptoms, and the patients were in a grave condition.

B. Lobar Pneumonia.

In the second part of the final paper the authors consider the results obtained in the treatment of seven cases of lobar pneumonia in man with the leucocyte extracts.

The authors refer to the apparent lack of value of the various anti-pneumococcic sera which have from time to time been exploited. They make no special claims for the results of their treatment, but leave the readers to draw conclusions from the descriptions of the courses of the disease in each case as they record them.

They note, however, in all the cases a fall of temperature following each injection of the extract, which is harmonious with their observations in the treatment of pneumococcic infections in animals. Improvements in other directions such as increased leucocytosis, limitation of the lesions, and improvement in subjective symptoms were noted in some, but not in all.

The work as a whole is worthy of special note not only because of the extremely valuable results probably to be obtained in the treatment of very serious diseases by a very simple method, which shows as yet neither dangers nor a tendency to bring on special disturbances, but also because of the very simplicity, and yet none the less logical character of the method pursued in the development of the work.

As in the case of many another demonstration of scientific fact hitherto unrevealed, we are led to wonder why no one of the multitude ardently worshipping at the shrine of immunity research for the last few years, had thought of the simple proposition of aiding the burdened phagocytes by introducing into the infected body some of these cells' powerful weapons in a condition available for immediate use.

Possibly the exhilarating flights into the mystic realms of the controversies between the Ehrlich and Metchnikoff schools were so all absorbing to the majority of the worshipers, that they were oblivious to the simple truths within their easy reach.

HERBERT D. PEASE.

# Public Health

**Edited by Joseph D. Craig, M. D.**

DEPARTMENT OF HEALTH—ALBANY, N. Y.

ABSTRACT OF VITAL STATISTICS FOR FEBRUARY, 1909.

*Deaths.*

| | 1905 | 1906 | 1907 | 1908 | 1909 |
|---|---|---|---|---|---|
| Consumption | 26 | 26 | 21 | 20 | 17 |
| Typhoid fever | 1 | 1 | 3 | 0 | 2 |
| Scarlet fever | 0 | 0 | 1 | 6 | 0 |
| Whooping-cough | 0 | 1 | 1 | 1 | 0 |
| Diphtheria and croup | 1 | 0 | 4 | 3 | 1 |
| Grippe | 2 | 0 | 5 | 10 | 0 |
| Diarrhœal diseases | 0 | 2 | 4 | 1 | 1 |
| Pneumonia | 22 | 11 | 19 | 7 | 4 |
| Broncho-pneumonia | 5 | 5 | 8 | 1 | 2 |
| Apoplexy | 10 | 7 | 11 | 8 | 8 |
| Bright's disease | 15 | 10 | 11 | 11 | 11 |
| Cancers | 6 | 10 | 13 | 18 | 12 |
| Accidents and violence | 10 | 3 | 9 | 7 | 6 |
| Deaths under one year | 19 | 14 | 21 | 12 | 9 |
| Deaths over seventy years | 34 | 25 | 45 | 32 | 18 |
| Total deaths | 162 | 147 | 178 | 175 | 114 |
| Death rate | 21.11 | 19.15 | 23.18 | 22.01 | 14.85 |
| Death rate less non-residents | 13.63 | 16.32 | 20.71 | 19.37 | 13.29 |

*Deaths in Institutions.*

| | 1905 | | 1906 | | 1907 | | 1908 | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Resident | Non-resident | Resident | Non-resident | Resident | Non-resident | Resident | Non-resident | Resident | Non-resident |
| Albany Hospital | 19 | 11 | 7 | 9 | 8 | 9 | 8 | 8 | 5 | 5 |
| Albany Orphan Asylum | 1 | 0 | 4 | 0 | 2 | 1 | 0 | 0 | 0 | 0 |
| Child's Hospital | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 2 | 0 |
| Home for Aged | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| Homeopathic Hospital | 2 | 0 | 0 | 1 | 1 | 1 | 2 | 1 | 1 | 0 |
| Hospital for Incurables | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| House of Good Shepherd | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Public places | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| St. Margaret's House | 4 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 2 | 0 |
| St. Peter's Hospital | 1 | 3 | 0 | 9 | 3 | 3 | 4 | 4 | 7 | 2 |
| St. Vincent's Female Orphan Asylum | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| St. Frances De Sayles Orphan Asylum | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| Penitentiary | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |

| | |
|---|---|
| Births at term | 92 |
| Still births | 8 |

## Bureau of Plumbing, Drainage and Ventilation.

In the Bureau of Plumbing, Drainage and Ventilation there were two hundred and seven inspections made of which ninety were old buildings and one hundred and seventeen new buildings. There were seventy-one iron drains laid, nineteen connections to street sewers, twenty tile drains, fifty-six cesspools, ninety-seven wash basins, one hundred and four sinks, eighty-nine bath tubs, ninety-one wash trays, one hundred and twenty-five tank closets and one slop hopper. There were fifty-three permits issued, of which forty were for plumbing and thirteen for building purposes. There were twenty-one plans submitted of which six were of old buildings and fifteen of new buildings. Four houses were tested with peppermint. There were seventeen water tests. Twenty-one houses were examined and one hundred and sixty-seven were re-examined. Seven complaints were found to be valid and fourteen without cause.

## Bureau of Contagious Diseases.

*Cases Reported.*

| | 1905 | 1906 | 1907 | 1908 | 1909 |
|---|---|---|---|---|---|
| Typhoid fever | 4 | 1 | 13 | 5 | 10 |
| Scarlet fever | 6 | 22 | 5 | 75 | 1 |
| Diphtheria and croup | 4 | 7 | 41 | 22 | 6 |
| Chickenpox | 8 | 8 | 3 | 7 | 18 |
| Measles | 66 | 2 | 16 | 145 | 2 |
| Consumption | 0 | 0 | 12 | 32 | 46 |
| Totals | 88 | 40 | 90 | 286 | 83 |

*Contagious Disease in Relation to Public Schools.*

| | *Reported* | | *Deaths* | |
|---|---|---|---|---|
| | D. | S. F. | D. | S. F. |
| Public School No. 8 | 1 | .. | .. | .. |
| Public School No. 11 | 1 | .. | .. | .. |
| St. Patrick's School | 1 | .. | .. | .. |

Number of days quarantine for diphtheria:
Longest..... 26 Shortest..... 8 Average..... 15 1/6
Number of days quarantine for scarlet fever:
Longest..... 36 Shortest..... 18 Average..... 25 1/2

Fumigations:
Houses..... 18 Rooms..... 78

| | |
|---|---|
| Cases of diphtheria reported | 6 |
| Cases of diphtheria in which antitoxin was used | 6 |
| Cases of diphtheria in which antitoxin was not used | 0 |
| Deaths after use of antitoxin | 1 |

### Bender Report on Tuberculosis.

| | |
|---|---|
| Positive | 8 |
| Negative | 31 |
| Failed | 0 |
| Total | 39 |

### Tuberculosis.

| | | | |
|---|---|---|---|
| Living cases on record February 1, 1909 | | | 268 |
| Reported during February, 1909: | | | |
| By telephone | 1 | | |
| By Bender | 12 | | |
| By card | 31 | | |
| | | 44 | |
| Dead cases reported by certificate | | 8 | |
| | | | 52 |
| | | | 320 |
| Dead cases previously reported | | 9 | |
| Dead cases not previously reported | | 8 | |
| | | | 17 |
| Living cases on record March 1, 1909 | | | 303 |

### Total Tuberculosis Death Certificates Filed.

| | |
|---|---|
| February, 1909 | 17 |

### Bureau of Pathology.

*Bender Laboratory Report on Diphtheria.*

| | 1905 | 1906 | 1907 | 1908 | 1909 |
|---|---|---|---|---|---|
| Initial positive | 2 | 2 | 32 | 14 | 8 |
| Initial negative | 9 | 12 | 54 | 77 | 36 |
| Release positive | 0 | 3 | 123 | 42 | 1 |
| Release negative | 3 | 4 | 222 | 106 | 24 |
| Failed | 0 | 0 | 25 | 2 | 17 |
| Totals | 14 | 21 | 456 | 241 | 86 |
| Sputum for tuberculosis: | | | | | |
| Initial positive | 3 | 0 | 7 | 8 | 9 |
| Initial negative | 1 | 5 | 6 | 11 | 29 |

## Bureau of Markets and Milk.

| | |
|---|---|
| Market re-inspections | 126 |
| Public market inspections | 20 |
| Fish markets inspected | 18 |
| Milk wagons and milk in clean condition | 14 |
| Wagons and milk in unclean condition | 0 |
| Butter fats below 3% | 1 |
| Butter fats from 3 to 3.5% | 4 |
| Butter fats from 3.5 to 4% | 8 |
| Butter fats over 4% | 1 |
| Solids below 12% | 5 |
| Solids from 12 to 12.5% | 1 |
| Solids from 12.5 to 13% | 3 |
| Solids over 13% | 5 |

## Bureau of Milk.

| | | Butter Fats | | | | Solids | | | |
|---|---|---|---|---|---|---|---|---|---|
| No. | Specific Gravity | Under 3% | 3 to 3.5% | 3.5 to 4% | Over 4% | Under 12 % | 12 to 12.5% | 12.5 to 13% | Over 13% |
| 1 | 32.4 | .. | 1 | .. | .. | 1 | .. | .. | .. |
| 2 | 31.3 | 1 | .. | .. | .. | 1 | .. | .. | .. |
| 7 | 30.6 | .. | 1 | .. | .. | 1 | .. | .. | .. |
| 41 | 31.6 | .. | 1 | .. | .. | 1 | .. | .. | .. |
| 58 | 30.6 | .. | 1 | .. | .. | 1 | .. | .. | .. |
| 68 | 33.6 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 83 | 32.4 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 106 | 33.6 | .. | .. | 1 | .. | .. | .. | 1 | .. |
| 127 | 33.4 | .. | .. | .. | 1 | .. | .. | .. | 1 |
| 153 | 32.6 | .. | .. | 1 | .. | .. | .. | 1 | .. |
| 161 | 29.4 | .. | .. | 1 | .. | .. | 1 | .. | .. |
| 170 | 33.7 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 183 | 31.6 | .. | .. | 1 | .. | .. | .. | 1 | .. |
| 184 | 32.4 | .. | .. | 1 | .. | .. | .. | .. | 1 |

## Miscellaneous.

| | |
|---|---|
| Mercantile certificates issued to children | 20 |
| Factory certificates issued to children | 16 |
| Children's birth records on file | 36 |
| Number of written complaints of nuisances | 26 |
| Privy vaults | 2 |
| Plumbing | 16 |
| Other miscellaneous complaints | 8 |
| Total number of dead animals removed | 365 |
| Cases assigned to health physicians | 71 |
| Calls made | 212 |

# Society Proceedings

## Medical Society of the County of Albany.

A regular meeting of the Medical Society of the County of Albany was held at German Hall, November 14, 1908, in conjunction with the Albany Branch of the State Charities Aid Association. Dr. Macdonald presided. Besides the members of the Society a goodly number of persons interested in tuberculosis were present.

The meeting was called to order at 8.30 p. m. After the invocation by Rev. Charles E. Richmond, D. D., introductory remarks were made by Mr. Charles Gibson, president of the Albany Branch, State Charities Aid Association.

Hon. Charles E. Hughes, Governor of New York, delivered an address as honorary chairman. Governor Hughes prefaced his remarks by saying that he did not intend to speak to any great extent upon the very important subject of tuberculosis. We are given to admiration, said he, of brave deeds done on the field of battle, but much more impressive is the heroism that marks the campaign being carried on against the evils affecting society. The general interest in the crusade against the great white plague was fully manifest in the tuberculosis convention held recently in Washington, but local interest, rather than general interest would produce results. While we are gratified at the general awakening everything depends on local work. It is in our own locality where lessons must be taught and learned and applied before results can be expected. Slowly though it might be, I am pleased to believe that the work is progressing. I feel that some advancement has been made. There is much fighting yet to be done in this war on disease, but first the fortifications must be built. Ignorance must be removed and parsimony and prejudice. The true nature of disease must be made known to all. Prejudice against what many considered interfering with private affairs must be done away with, and thorough awakening of the people to the importance of the campaign and the significance of the situation accomplished. I doubt if any more important work lies before the people of New York State at the present moment than the campaigning against tuberculosis.

It is sad to think that the great burden of this disease rests on the industrial workers of the State. The ones burdened most are the least able to combat their condition and they are destroyed not only physically but in their efficiency as an industrial class by a condition which it is possible to prevent.

Hardly anything ought to engage the attention of the people of Albany more than this great work. They should be holding mass meetings of their own instead of at the instigation of a State organization. God speed the brave army of workers in their vast work. Let the example to the rest of the State be set by the Capital City of the State where certainly such examples should be set.

Rt. Rev. Richard H. Nelson, Coadjutor Bishop of Albany, spoke on "The Work of the Albany Committee of the State Charities Aid Association." Bishop Nelson spoke of the excellent work that has been accomplished and

the work that has been started. The committee had published a series of articles and one of them is already issued. One article relates to the mutual obligation between employer and employee to keep workshops in sanitary condition. Another article has been prepared by a trade union statistician showing results in the spread of tuberculosis and indicating what progress has been made towards better conditions in factories and workshops. Bishop Nelson also stated that it was the intention of the committee to begin a series of lectures in the shops and factories of the city. These lectures will be given by local physicians and will begin as soon as some specially prepared banners are received. He referred to the co-operation which the Central Federation of Labor had given, especially the tuberculosis pavilion which had its origin at a meeting of the local tuberculosis committee. With regard to the management and support of the pavilion the labor men are not asking for an appropriation from the city to carry on its work. The economic conditions in the tenements and in the home are now the subject of special study on the part of the committee. He concluded his remarks by urging the necessity of a hospital in Albany where advanced tuberculous cases could be cared for.

Mr. Philip V. Danahy, of the Central Federation of Labor, spoke on "The Relations of Organized Labor to the Tuberculosis Crusade." Mr. Danahy said: I am pleased to be with you on this occasion and I consider my presence most significant, as it indicates that the time has arrived when men of science are coming to realize that the great problems that are pressing them for solution have an economic aspect, that when you are wrestling with the problem of combatting disease you do not ignore the great social and economic problems that are crying for solution. The labor movement from its very inception endeavored to remove the conditions that are responsible for the prevalence of many diseases with which you are battling, especially tuberculosis. Nearly all the laws providing for better sanitary conditions, safety appliances on machinery, safeguards in mills, in mines, in factories and on railroads and the restriction of child labor have been placed on the statutes through the instrumentality of organized labor.

The labor unions are glad to co-operate with physicians in this crusade because it is entirely in keeping with the principles and objects of the labor movement, and moreover the laboring classes have been especially the sufferers from tuberculosis. The great object of the labor unions is to maintain a proper standard of living; the regulation of the hours of labor, in order that the workingmen might secure proper rest, the adoption of a wage sufficient to maintain their families, and enable them to educate their children properly, the abolition of tenement house and sweat shop work, the effecting of more sanitary working conditions in factories and workshops, the abolition of child labor in industries, these methods for bringing about the social and economic betterment of laboring men correspond with the methods physicians are employing for the physical needs of the people.

That the trade union movement has been an important factor in staying the ravages of "the white plague" there is no question. When the appeal was made for the helpless victims of tuberculosis, labor was quick

to respond, and there stands the Federation's Pavilion as Labor's modest contribution. The records of the Cigarmakers Union as a single instance indicate what a power organized labor has been in dealing with the problem of public health.

The vital statistics of the Cigarmakers International Union show:

THE AMOUNT PAID FOR DEATH BENEFITS.

| Year | Total | On account of Tuberculosis | Per cent |
|---|---|---|---|
| 1890 | $26,043 00 | $12,761 07 | 49 |
| 1895 | 66,725 98 | 23,354 09 | 35 |
| 1900 | 98,291 00 | 32,436 03 | 33 |
| 1905 | 162,818 82 | 32,150 00 | 20 |

Fifteen years ago about one-half of the amount expended for death benefits was on account of those who died from tuberculosis, to-day the outlay for this purpose has been reduced to about twenty per cent. more than half.

THE AMOUNT PAID FOR SICK BENEFITS.

| | | | |
|---|---|---|---|
| 1890 | $64,660 47 | $31,683 63 | 49 |
| 1895 | 112,567 06 | 39,398 47 | 35 |
| 1900 | 117,455 94 | 38,706 43 | 33 |
| 1905 | 165,917 80 | 41,147 61 | 24 |

Death rate.—Of the deaths among the cigarmakers, tuberculosis was the cause: 1888 fifty-one per cent.; 1890 forty-nine per cent.; 1895 thirty-five per cent.; 1900 thirty-three per cent.; 1905 twenty-four per cent. In 1888 the average life of the cigarmaker was thirty-one years four months twenty days; in 1905 it was forty-six years ten months twenty-four days, an increase of fifteen years six months four days in eighteen years.

When a broader conception of organized labor is taken it will be realized that it is a great humanitarian movement, building the foundation for a grander and nobler civilization.

"What Can a City do to Combat the Ravages of Tuberculosis," Dr. John H. Pryor, Buffalo, N. Y.; "The Favorable Aspects in the Medical Treatment of Pulmonary Tuberculosis," Dr. Samuel B. Ward; "The Tuberculosis Dispensary; Its Part in the Albany Campaign," Dr. Arthur T. Laird. (These papers appear in full in the February number of THE ALBANY ANNALS.) Dr. Herbert D. Pease briefly explained the drawings, photographs and diagrams in the stereopticon views from the State Department of Health in his address on "The Nature of Tuberculosis."

The meeting adjourned at 11.00 p. m.

JOSEPH A. LANAHAN, *Secretary.*

WILLIS G. MACDONALD, *President.*

# Medical News

**Edited by Arthur J. Bedell, M. D.**

THE ALBANY GUILD FOR THE CARE OF THE SICK—DEPARTMENT OF VISITING NURSING—STATISTICS FOR FEBRUARY, 1909. Number of new cases, 128; *classified as follows:* Dispensary cases receiving home care, 12; district cases reported by health physician, 7; charity cases reported by other physicians, 58; moderate income patients, 51; old cases still under treatment, 113; total number of cases under nursing care during the month, 241. *Classification of diseases for new cases:* Medical, 42; surgical, 8; gynecological, 4; obstetrical, mothers, 40; infants, 29; eye and ear, 1; skin, 1; dental, 3; infectious diseases, 17; removed to hospitals, 16; deaths, 8.

*Special Obstetrical Department.*—Number of obstetricians in charge of cases, 2; number of medical students in attendance, 2; number of Guild nurses in attendance, 3; number of patients, 3; visits by head obstetrician, 1; visits by students, 17; visits by nurses, 19; total number of visits, 37; number of recorded visits, all departments, 988; number of unrecorded visits, 334; total, 1,342; number of health physicians reporting cases during the month, 3; other physicians, 36; dentists, 2; graduate nurses, 7, and pupil nurses on duty, 6.

ST. LAWRENCE STATE HOSPITAL, OGDENSBURG, N. Y.—The managers of the St. Lawrence State Hospital announce that there has been established at the hospital a free dispensary, where poor and indigent persons suffering from incipient mental or nervous affections may consult with the physicians of the hospital and receive advice. The individual treatment of such persons will not be undertaken, but they will be referred back to their family physician, a letter will be mailed to him summarizing the neurological and mental findings, advising as to the management of the case, and the medical and hygienic treatment. No fee or gratuity of any kind will be received and no medicines will be dispensed or sold. Dispensary hours will be Saturdays only, from 10:00 a. m. to 3:00 p. m.

The board also wishes to call attention to an amendment to the law governing State Hospitals, passed at the last session of the legislature, permitting the admission of voluntary patients, and without the formality of certification and commitment as is necessary in the case of insane patients. Persons suffering from the effects of the drug habits and alcoholism are not eligible for admission under this act as voluntary patients, but those who have become insane through the use of drugs or alcohol may still be committed upon a certificate of two physicians, as formerly.

It is earnestly hoped that the establishment of the dispensary will meet the approval of the medical profession and the public, and that the hospital authorities may have the co-operation of all intelligent people throughout this district, in their efforts to afford early oversight and treatment to all persons with any nervous disease or mental infirmity, which, if not rightly handled, might lead in time to insanity.

ATROPINE AS A HEMOSTATIC.—Dr. Wm. F. Waugh of Chicago, is collecting material for a paper upon atropine as a hemostatic, and would be

obliged to any of the readers who would send him notes of their experience with this remedy. He is particularly anxious to receive adverse reports as well as those favoring the remedy.

New York Skin and Cancer Hospital.—The governors of the New York Skin and Cancer Hospital announce that Dr. L. Duncan Bulkley will give a tenth series of clinical lectures on Diseases of the Skin in the out-patient hall of the hospital on Wednesday afternoons, commencing March 10, 1909, at 4:15 o'clock. The course will be free to the medical profession.

Progress Against Tuberculosis.—At the first annual meeting of the Albany committee on the prevention of tuberculosis of the State Charities Aid Association a number of interesting reports were given. Before the members assembled on March 10th, in the Hotel Ten Eyck, Dr. F. C. Curtis, chairman of the committee on dispensary class and visiting nurses, gave an interesting account of the work being done in the South End Dispensary and those who are engaged in it.

There are four main divisions of the work at the dispensary: First, diagnosis; second, advice as to plans to be made for the patient; third, treatment; and fourth, education of patients and families. The dispensary serves as a clearing house for those attracted to different institutions caring for tuberculous patients. The tuberculosis class started in 1907, by the Albany Guild, is now conducted at the dispensary to which it has been transferred as part of its work.

Since the opening of the dispensary 144 persons have been examined. There have been seventy-six tuberculous and sixty-eight non-tuberculous; fifteen have applied for admission to Raybrook, three have been admitted; twenty-two have applied for admission to the Central Federation of Labor Pavilion.

Bishop Richard H. Nelson reported for the Committee on Education and Publicity. He spoke of the short talks given in various workshops of the city on the subject of tuberculosis. He made mention of printed placards containing statements of the causes and conditions that induce tuberculosis, the aids in prevention and cure, and mentioned a list of boarding houses in the Adirondacks where patients were received for a moderate sum. Others who spoke were, Homer Folks, secretary of the State Charities Aid Association. William H. Storrs, Commissioner of Charities and Correction; William H. Erwin of the Red Cross Day Camp, and Miss Ethel Van Benthuysen, chairman of the Supply Committee.

The officers elected for the year were: President, Charles Gibson; vice-presidents, John J. Brady, Mrs. W. W. Byington, Bradford R. Lansing, Mrs. Simon W. Rosendale, Thomas I. Van Antwerp; treasurer, Patrick C. Dugan; secretary, Dr. H. L. K. Shaw.

The New York State Department of Health has sent out the following on postal cards: "Ophthalmia Neonatorum causes one-fourth of all blindness among children, and one-eighth of all blindness from all causes.

"Ophthalmia Neonatorum may be prevented in almost every case by the instillation of a silver salt solution into the eyes of the new-born infant.

"A responsibility, almost criminal, of causing human blindness lies at the door of the practice of midwifery for its neglect to employ a prophylactic in every case of confinement.

"Hereafter all birth reports will contain the inquiry, Did you employ a preventive for Ophthalmia Neonatorum? If not, why not?

"For the convenience of doctors, nurses and midwives, health officers will in the near future distribute free, containers of a silver salt solution for use in the toilet of the new-born.

"A roster of all physicians in the State who are willing to employ a preventive is being compiled by the State Department of Health."

For a State Reservation of the Natural Mineral Waters of Saratoga Springs.—The Saratoga Springs Medical Society has sent out a circular letter asking all physicians to assist in passing a bill for the creation of a State Reservation of all the Mineral Springs and gas wells in the town of Saratoga Springs for the purchase and preservation of the mineral springs.

The act authorizes the selection, location and appropriation of certain lands in the town of Saratoga Springs for a State Reservation to preserve the Natural Mineral Springs therein located. It provides that there shall be appointed by the governor, three residents of the State of New York for a term of five years, serving without pay and receiving only actual expenses in performing the duties of the office. They shall be termed "The Commissioners of the State Reservation at Saratoga Springs."

Their duty shall be to select, locate, and acquire for the State such lands in the town of Saratoga Springs, and any rights, easements, or interest in any lands in the town that they shall deem proper or necessary to preserve the natural mineral springs in the town and of restoring the springs to their former natural condition. Maps and surveys of lands deemed necessary to thus acquire will be made, at the direction of the commissioners, by the State Engineer and Surveyor. The act carries with it an appropriation for the purchase of these mineral lands, and provides that in case the commissioners shall not agree with owners upon the price to be paid for lands and easements, the owners may recover judgment in the Court of Claims.

After these lands shall be acquired they are to remain the property of the State for the purpose of preserving the mineral springs and wells and shall become a part of the State Reservation. No part of these shall ever be sold without consent of the State legislature, and they shall forever be open and free to the public, to enjoy the use of the mineral water without charge.

The reservation is to be under the direction of the commissioners, who are empowered to make such regulations as shall be necessary for the protection of the property. They are given the power to hire such employees as shall be necessary. It is provided that the State shall have the entire income from the bathing and bottling privileges of the springs.

The Antivivisection Bill has been introduced and it is the imperative duty of every physician to urge his representative in Senate and Assembly to vote against the measure.

The committee on experimental medicine of the Medical Society of the State of New York is issuing a series of articles bearing on the legitimacy and necessity of animal experimentation and demonstrating the perniciousness, as well as the utter lack of justifications, for any form of special legislation in restriction of such experimentation. Among the papers that have recently come under notice are: "Animal Experimentation and Diabetes," by Dr. Graham Lusk; "Ethics of Animal Experimentation," by Dr. John Dewey; "Animal Experimentation as Viewed by the Superintendent of a Hospital," by Rev. G. F. Clover; "The Service of Animal Experimentation to the Knowledge and Treatment of Nervous Diseases," by Dr. Charles Dana; "The Relation of Animal Experimentation to the Live Stock Industry," by Dr. V. A. Moore; "Animal Experimentation and Nutrition," by Prof. L. B. Mendel; and "Why are Special Laws to Restrict Animal Experimentation Unwise?" by Dr. John G. Curtis.

Blanks Issued by State Department of Health for Prevention of Tuberculosis.—The enclosures sent to health officers are as follows:

The yellow card for the individual reports of tuberculosis by the physician.

The statement of procedures and precautions to be taken on premises of a tuberculosis patient by the attending physician or health officer.

The blank requisite for supplies.

The circular of information to be transmitted by health officers to physician or person with disease.

Copies of law have been mailed by Department before.

Attention is directed to the following provisions of this act:

Free examination of sputum must be provided for. The State Department of Health is prepared to continue this work and examinations will be made on request by health officers, and mailing packages are provided.

The blank statement of procedures and precautions enclosed must be printed by local health authorities and furnished in sufficient quantities. The yellow circular will be used for the present as the "Circular of Information," called for in Section 9. The other sections should be carefully read and observed.

Every health officer should require a full compliance with the provisions of the act and see that reports are made.

The register called for in Section 3 should be carefully kept. The placard provided for by Section 6 should be printed by each locality.

In a previous communication attention was called to the fact that this law involves some expenditure by each municipality and that provision to meet this should be made.

The penalty for violating any of the provisions of this act is a misdemeanor.

The most important of these blanks, "Statement concerning Procedures and Precautions to be taken on the Premises of a Tuberculosis Patient by the Attending Physicians or by Local Health Officers," provides for a careful detailed report by the physicians as to the housing and domestic conditions of the family, and incidentally the correction of these conditions as far as possible with the aid of the machinery at the disposal of

the Department of Health, which includes advice by the physician or health officer, disinfection of the premises, instructive literature, and in a number of cases the attendance of a visiting nurse and through the co-operation of the Department of Charities, the providing of free milk and eggs for those unable to buy these. These blanks have been carefully worked out by the State Department of Health with the assistance of the State Charities Aid Association, and are so designed as to insure the greatest possible chance of recovery for the patient and the maximum of protection for the community.

While the law provides for the registration of all living cases of tuberculosis, and a register of these records kept, it also provides that these records shall not be public so that the greatest of objections to such legislation has thus been removed. Further steps are to be taken by the Department of Health to insure the enforcement of these measures and it is confidently expected that with the co-operation of public officials and private citizens, the death rate in this state will be materially diminished in the course of a few years.

Union College Alumni Association.—Sixty-five members of the Union College Alumni Association united in giving a reception March 10th at the University Club to Dr. Charles A. Richmond, the president-elect of Union College. Dean Ripton of the college, Dean J. Newton Fiero of the Albany Law School, and Dean Willis G. Tucker of the College of Pharmacy, were among the notables present. Informal talks and a musical program inclusive of college songs, constituted the entertainment. Election of officers for the ensuing year were as follows: President, E. D. Ronan, '61; vice-president, Charles H. Mills, '72; treasurer, Carl P. Wagoner, '01; secretary, A. J. Chapman, '06.

Personals.—Dr. George Scott Towne (A. M. C. '99) has been appointed by the Saratoga Board of Health, health officer for a term of four years.

—Dr. Frederic C. Conway (A. M. C. '06) has moved from Albany and is in practice at Bismarck, North Dakota.

—Dr. William C. Treder (A. M. C., '07) now assistant in bacteriology and pathology at the Syracuse Medical College, has been appointed assistant bacteriologist in the Department of Health at Syracuse.

—Dr. George P. Pitkin (A. M. C. '08) has resigned as resident of the Albany Hospital, and has started practice at Schroon Lake, N. Y.

Married.—Dr. William C. Porter (A. M. C. '07) and Miss Losee King were married at Catskill, N. Y., January 1, 1909. Dr. and Mrs. Porter will reside at the Hudson River State Hospital, Poughkeepsie, N. Y.

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Died.—Dr. Inmon S. Lowell (A. M. C. '71) of Douglas, Ill., died at Galesburg, Ill.. November 19, 1908, aged 66.

—Dr. B. S. McCabe (A. M. C. '50) died at his home in Greenville, N. Y., March 16, 1909, aged 84.

# In Memoriam

## Charles H. Roberts, M. D.

Charles H. Roberts was born in the town of Moreau, Saratoga County, on January 14, 1821, to Deborah Brownell and Lucius Quintus Cincinnatus Roberts. Though an exceedingly unassuming man my father was quietly proud of his ancestors. His great-grandfather, Colonel Owen Roberts, of noble birth and having received a military education, came from Wales to Charleston where at the time of the Revolution he was a wealthy planter. A determined man, vestryman of the Episcopal Church, he, when offered a commission in the King's army after trouble began, declined it, declaring he would stand by the colonies, "Come weal or come woe." He was killed at the battle of Stono, one of the first engagements, but dying under a tree near the scene of the battle gave his sword to his son and sent him back to his duty; this son was then Lieutenant, afterward Major, Richard Brook Roberts. Garden in his "Anecdotes of the Revolution," says his death was a cause of universal regret, "he was an inflexible patriot, an excellent disciplinarian and an enthusiast in pursuit of military fame." Major Richard Brook Roberts married Everada Catrina Sophia van Braam, a daughter of Andrew Everad van Braam who represented the Dutch East India Company in China and who came to Charleston after the war, and losing several of his family with yellow fever, he returned to Holland without his only remaining child who had married young Roberts and thence back again to China as Ambassador on the occasion of the Emperor's sixtieth anniversary. England also sent an embassy, Holland and England being close competitors for Chinese trade. Later he returned to America and purchasing a place about seventeen miles from Philadelphia, and three from Burlington on the Delaware river, which formerly called "Mt. Benger," he rebuilt in a for those days princely style, and named "China's Retreat," he sent for his daughter and her children. Major Roberts was then in command of Fort Fidious in Georgia on the Occonee river where his wife was playing the spinet to the Indian braves who jumped through the window to listen. Her husband sent her under escort of Lieutenant Staats Morris, son of Lewis Morris, whom later she married, after Major Roberts' death. Lucius Quintus Cincinnatus Roberts was then only nine years old but he remembered the carriage with its Malay servants which came to meet them on their journey; probably the first Chinese in the country, his grandfather's servants always created interest. He remembered Talleyrand, who passed a good deal of his time at "China's Retreat" while in America, discussing European affairs with van Braam or talking in courtly French with his mother, accompanying her indeed to the closing exercises of the Bordentown Academy where he was at school. Lucius Quintus Cincinnatus Roberts, born while his father was absent at the organization of the society of the Cincinnati, was named in its honor. This long name I am convinced proved a stumbling block through life for, though sent to Hol-

land for his education and traveling extensively over the world, his life was unsuccessful, the chief fruits an ample autobiography and a family he was unable to support, the next to the eldest of which was my father. I never heard my father speak of his father. After the death of his mother, a handsome, energetic woman, who did her best, he left what must have been an unsatisfactory home to shift for himself when eighteen years of age. With shabby clothes and a still shabbier education and with no help from that generation of rich and educated relatives that had passed away since his father's youth, my father either taught school or worked on a farm to enable him to gain the education he wanted. Farming in summer and teaching school in winter yielded to teaching in winter and attending the Glens Falls Academy in summer, and in 1842 he began the study of medicine with Dr. Nelson Sheldon of that place. When able to enter the Albany Medical College he always felt grateful for that aid given by the charter of the college which required that two "worthy and promising students" be admitted free, one half-term each, subject to appointment by the Regents. This was a help and by teaching and a note my father was able to complete his course. His graduation in 1846 must have marked the end of his most severe struggle in those days when there were not the easy roads to education of to-day but I question (and I know he would agree) whether the effort was not better and the self-reliance, determination and character engendered worth more than the richest scholarship.

My father practiced medicine with Dr. Sheldon for a time in Glens Falls, he devoted the winter of 1848 to the study of chemistry and surgery in Philadelphia, but whether he had obligations to meet or perhaps naturally impatient of delay in the success he intended, he abandoned medicine not willing to wait for her slower reward and taking up the study of dentistry, perhaps from the dental work naturally coming to a country physician in those days, he invented a preparation of the silicate of the oxychloride of zinc which as "os artificiel" was largely used in this country and in Europe. His hard work told upon his health and in 1856 he went to Europe for rest and change. He was interested in the production of paper from wood pulp, then in its infancy at Glens Falls and Herkimer. He married in December, 1866, Katherine Aymar, daughter of Samuel Montmorenci Freeman, of Poughkeepsie, and after a winter in Cuba, they returned to his property in Ulster County, near Highland, on the bank of the Hudson, which he considered the loveliest spot on earth, and where he was happiest, and here he made his home with the exception of nine years passed in Wilmington, N. C., as president of the Carolina Central Railroad, which he succeeded in completing and putting on a stable footing in the trying conditions following the civil war.

My father was at one time interested in locating western lands, but always deeply a student of railways and successful as an investor, his investments were based on a thorough study of the property with its possibilities and his advice was constantly sought by others.

Though generally considered a hard man my father educated his sister as soon as able and tried to help a younger brother who mapped out his own career however by running away from school, going to the Mexican

war, where he was made a Colonel, and then inventing a torpedo to blow up the Pennsylvania oil wells, he made a fortune thereby. My father's aid to young men cost him several hundreds of thousand and while not often wisely bestowed, showed his sympathy for the struggling. This sympathy absolutely ceased as soon as the stress of affairs of its recipient was over and unhappily did not cease until such was the case, so that the unworthy often profited.

Farming was his only extravagance and this though quite a costly one gave him an outlet for his energy. I never saw my father idle, always either at his desk in the library or reading, walking over the place "monarch of all he surveyed," or delving in the garden with his cigar as a constant companion, he had no tolerance for ease and except when sitting on the piazza watching a storm or for a few moments in the evening watching the lights on the river, he was always busy. To be honest is often to be contradictory, his father's ineptitude made my father see labor as the greatest thing in life, poverty its greatest incentive, and riches its greatest pitfall, but oddly enough he had the keenest fear of and sympathy for poverty—its humiliations to his temperament were abiding, "In the midst of abundance live economically" was his cry—and his practice. His children, all of whom are living, are Frances Parcells, Grace van Braam, Charles H., Owen Freeman, Irving Bruce and Thornton Delano.

G. van B. Roberts.

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## Bradley Selleck McCabe, M. D.

Dr. B. S. McCabe,, one of the best-known and best-loved physicians in Greene County, died on March 16, 1909, at his birthplace, Greenville village.

Bradley Selleck, son of Benjamin and Sarah Gedney McCabe, was born March 26, 1825, educated at the Greenville Academy, and graduated from the Albany Medical College in 1850. In the same year he married Mary L. Botsford, youngest daughter of Dr. Amos Botsford. Always prominent in local affairs, his kindly disposition, courtly manners and wise counsel gained him reputation and friends outside the limits of his home town. He was Member of Assembly in 1884, and Supervisor for Greenville in 1861-1864, 1874 and 1875. In a ripe old age he has been gathered to his fathers, his last years attended by the wife of his youth, who survives him, and by three sons born to them: Amos of New York city, George and Charles P. McCabe, M. D., of Greenville.

Dr. McCabe was "one who bore without abuse the grand old name of a gentleman." Staunch in his loyalty to his friends, his noble spirit, fine mind and gentle bearing endeared him to all hearts. "The hoary head is a crown of glory if it be found in the way of righteousness. Length of days is in her right hand; her ways are ways of pleasantness, and all her paths are peace."—*From the Catskill Recorder.*

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## Original Communications

# THE RECTAL SHELF:

## A Neglected Rectal Sign of Value in the Diagnosis and Prognosis of Obscure Malignant and Inflammatory Disease Within the Abdomen.

*Read before the Medical Association of Troy and Vicinity, April 6, 1909*

By GEORGE BLUMER, M. D.,

*New Haven, Conn.*

The diagnosis of intraabdominal disease is a subject which exerts a good deal of fascination over the mind of the clinician, partly on account of the many disease possibilities which lie within the abdominal cavity, and partly on account of that obscurity which lends a sense of mystery and stimulates the observer to his greatest effort. Among the more obscure abdominal disorders neoplasms of the various organs and inflammations of a chronic character present great difficulties in diagnosis. Malignant and inflammatory conditions may indeed be confounded with one another, and this is especially the case, as Janeway and others have pointed out, in certain forms of localized peritonitis which simulate new growth. In the case of malignant disease it is of the greatest import to the patient and the practitioner to recognize the process early, and from the diagnostic and prognostic standpoint the detection of metastases is of paramount importance. For these reasons any new (an epigrammatist has remarked that "the new things in medicine are the things which have been forgotten") or neglected sign which may be of value in intraabdominal diagnosis merits description. The sign which I wish to bring to your attention is one which I have been observing for the past two or three years. It is not, as I shall presently show you, a new sign, but for some reason it seems never to have

gotten into the text books, and scarcely at all into the periodical literature. I prefer to call it the rectal shelf, because that best describes its feel.

In 1895, H. Strauss, the German gastrologist, discussing some operative cases of carcinoma of the stomach says, "We found at the operation on this case carcinoma metastases in the liver, in the retroperitoneal tissue, and in Douglas' pouch, a situation which we have found before as a site of metastasis, and which *on account of its explorability merits more frequent examination in these cases.*" (italics mine) Four years later the same writer discussing the diagnosis of gastric carcinoma says: "I have previously noted that one finds *early and the only metastasis* (italics mine) in some cases in Douglas' pouch. I have since seen two cases, in one of which there was special interest, as this was the point that decided between ulcer and carcinoma." Until an article by Schnitzler, published last year, Strauss seems to have been the only writer, except Kelling, who emphasized the importance of metastases in Douglas' pouch from the clinical side. The rectal tumor which forms in these cases has occasionally been noted, as I shall show, and the pathologists have been impressed by the not infrequent occurrence of metastases in this location. Thus Orth, in the sixth edition of his "Diagnostik" says, in speaking of the pelvis, "A very special interest attaches to this region in tuberculosis and carcinoma of the peritoneum, especially the disseminated type. While there may be no tubercle in the neighborhood and no cancer nodules, there occurs, as a rule between the rectum and bladder, a metastasis sufficient to cause pressure, due to implantation of infective material in this, the most dependent portion of the peritoneal cavity. As a result there is often a circumscribed fibrous or productive inflammation. Through coalescence of tumor nodules there can form a board-like inflammation of the serous and subserous tissues which can reach the rectum and even penetrate its wall, and may give rise during life to a diagnosis of rectal cancer." Chiari substantiates this statement, and remarks that such metastases are moderately frequent in gastric carcinoma.

From clinical reports it is evident that the sign has been seen from time to time, and sometimes correctly interpreted, but its general significance has usually been overlooked. Thus Sym, of Edinburgh, describes in 1835, a case of tubercular peritonitis, proved by autopsy, in which he states that the rectum was ex-

To Illustrate Dr. Blumer's Article on "The Rectal Shelf: A Neglected Rectal Sign of Value in the Diagnosis and Prognosis of Obscure Malignant and Inflammatory Disease within the Abdomen."

*Albany Medical Annals, May, 1909*

amined during life by the medical attendant who found a tumor from its anterior wall encroaching upon it so as to prevent injections from passing up. Similar observations in connection with operations for carcinoma of the stomach are recorded by Griffon and Nattan-Larrier, and also by Payr in his interesting article on coincident stenosis of the pylorus and intestine. Toyosumi and Kelling publish similar cases: the latter remarks, "I examine every patient (with suspected carcinoma of the stomach) per rectum for glands in Douglas' pouch and for rectal carcinoma. This is not so infrequent with stomach carcinoma that one can afford not to examine every case rectally."

It is evident from these observations that under certain conditions malignant neoplasms within the abdomen metastasize to Douglas' pouch, and that in certain inflammatory conditions of an infectious nature the infective agent may set up marked localized changes in the same region. I might add that a similar condition may be produced in the female by extension of a uterine tumor to the pelvic cavity, and possibly in the male a bladder neoplasm might lead to the same result. The effect of this malignant or inflammatory infiltration of Douglas' cul de sac is the formation of the palpable rectal tumor which I have described as the rectal shelf. What, then, are the characteristics which distinguish the rectal shelf from other forms of rectal neoplasm, and what is its clinical value?

If one passes the finger into the rectum in these cases the lower portion of the bowel is usually normal, it is not until the prostate gland has been passed that any abnormality is detected. Just above the prostate in some cases, in others at the limit of palpability, two to four centimeters above, if the finger is passed along the anterior rectal wall it impinges upon a shelf of almost cartilaginous feel which projects into the rectal cavity. In some cases further palpation shows that the whole rectum is involved in an annular zone of infiltration more marked anteriorly and tapering off toward the posterior wall, a signet ring stricture, as Schnitzler calls it. In such cases the infiltration is no longer confined to Douglas' pouch but has involved the submucosa of the rectum in which the new formation may spread quite widely. The infiltrated area is more or less fixed, it is shelf-like, or peg-like, at the most prominent portion, and there is no ulceration of the mucous membrane over it. This lack of ulceration of the overlying mucosa, together with the peculiar shape, is what dis-

tinguishes the rectal shelf from a primary rectal neoplasm. Furthermore, the rectal shelf is not associated with the passage of blood and pus in the stools as is an ulcerated rectal neoplasm. There is some possibility of mistaking other conditions for the shelf. The lower Houston's fold is at times thickened, but I have not met with a case in which this caused any real confusion, as it has not the board-like, almost cartilaginous feel of the rectal shelf. In one instance I was deceived by a small, subperitoneal myoma which projected into Douglas's pouch and impinged on the rectal wall.

The clinical significance and value of the rectal shelf varies in different cases. At times it is merely useful in confirming a diagnosis, at others of great diagnostic and prognostic value. It must not be forgotten that in patients in whom the primary growth is latent the metastasis may be taken for the primary growth and has indeed in several instances been removed surgically as carcinoma of the rectum. Symptoms of obstruction in the rectum may be marked, as in some of Schnitzler's cases. If the rectal shelf is recognized as such it may therefore be of great value in pointing to a latent neoplasm elsewhere in the abdominal cavity. In the great majority of instances the primary growth will be in the stomach, indeed I have found but two exceptions to the rule, one published by Schnitzler, in which the primary growth was in the pancreas, and one observed by myself in which it was in the gall-bladder. Curiously enough the patients with gastric carcinoma and a rectal shelf are nearly all males; in females cancer cells gaining access to the peritoneum tend to implant in the ovary and cause ovarian metastases. One female patient of Kappeler's had both a rectal shelf and an ovarian metastasis, and I have seen one female patient with a probable gastric carcinoma and a rectal shelf. I have no accurate figures to show how frequent this form of metastasis is in gastric carcinoma. I have records of nine patients with undoubted carcinoma of the stomach in whom a rectal examination was made; in five of these a rectal shelf was present. All of these patients were males. Schnitzler states that he has observed this form of metastasis eleven times, but does not give the number of negative cases. The other published cases are scattered. I should judge that it is not unlikely that one-third of the patients with gastric carcinoma have a rectal shelf. Occasionally the shelf develops late, and there are one or two cases on record where over

a year after an operation for gastric carcinoma a second operation for rectal obstruction from this form of metastasis has been needed. In one patient in my series, a woman with the typical signs and symptoms of atrophic cirrhosis of the liver, the presence of the rectal shelf led to the discovery of an entirely latent epithelioma of the cervix uteri.

The rectal shelf is of prognostic value mainly in cases of gastric carcinoma where the ordinary methods of abdominal examination leave doubt as to the extent of the growth and the possibility of its removal. It is obvious that when the rectal shelf is found metastases in the glands in the region of the stomach are almost certainly present, and most likely other distant metastases. Where the shelf is present, therefore, radical operative procedures are contraindicated and the prognosis is definitely bad. Of course, a gastroenterotomy to render the patient more comfortable may be advisable, and when the rectal metastasis is very pronounced colotomy also has to be done at times.

It must be emphasized that a similar shelf may be found in cases of diffuse inflammation of the peritoneum, especially diffuse tuberculosis. In a case seen with Dr. L. C. Sanford, a young woman with multiple nodules in the abdomen and a very marked shelf, operation showed a diffuse tubercular peritonitis with extensive peritoneal infiltration. This sign is not then of value in differentiating new growths from the diffuse forms of tubercular peritonitis, but in cases where the inflammatory lesion is localized and simulates new growth it may be of great value. I have in several patients with chronic appendicitis and pelvic inflammatory disease felt what might be described as partial shelves, but these were not nearly so extensive as the shelf found with tubercular peritonitis and neoplasm, they were definitely one sided, and did not occupy the typical situation of the true rectal shelf on the anterior wall of the rectum.

## Summary

1. In certain forms of carcinoma of the abdominal organs, notably gastric carcinoma, and in some cases of tubercular peritonitis, implantation metastases in Douglas' pouch are common.

2. These metastases impinge upon the rectum and may infiltrate its submucosa, causing a peculiar shelf-like tumor on the anterior rectal wall, readily felt by the examining finger.

3. In cases of gastric carcinoma this may be an early metastasis, and occurs especially in males.

4. In such cases the primary tumor may be latent and the metastasis may be large enough to cause symptoms of obstruction. It has been mistaken at times for rectal carcinoma and has been removed as such.

5. The not infrequent occurrence of this rectal shelf makes it a diagnostic and prognostic sign of a good deal of importance, and warrants the statement that in no case of obscure abdominal disease should a rectal examination be omitted.

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# REMARKS ON ATROPHY OF THE TESTICLE.

By CHARLES GREENE CUMSTON, M. D.,

*Boston, Mass.*

Atrophy of one or both testicles may result from the most varied causes, but it must be pointed out that in every case the direct etiological factor is an orchitis. No matter from what cause the orchitis may develop, it can, under certain conditions, give rise to atrophy of the organ. Foremost among all is gonorrheal orchitis followed by atrophy. Likewise, there is frequent atrophy of the testicle following a tuberculous or syphilitic orchitis. Sometimes this occurs without any definite manifestation of an inflammatory process, while in others gummata or tuberculoma arise, destroying a portion of the parenchyma, while the remainder undergoes a sclerotic process. In syphilis the primary overgrowth degenerates with a shrinking and hardening of the organ in about 50 per cent. of the cases, after which fibrous induration takes place. The parenchyma is destroyed by con-

traction of the interstitial tissue; the remaining portion of the testicle will then be found hard and insensible to the touch, usually much smaller in size than its healthy neighbor.

Regarding tuberculosis, it may be said that occasionally an hypertrophy of the testicle may be encountered in phthisical subjects, although apparently there has been no lesion in the organ to account for this. I have seen two cases of atrophy of one testicle in consumptive patients, and consider this a valuable symptomatic sign of tuberculous prostatitis, even when the prostate does not appear diseased. When the testicle is invaded by a tuberculous process and if the latter gets well without operation, atrophy of the testicle is sure to follow. In one case recorded in literature, that of a man thirty-two years of age who had been treated for tuberculosis of the testicle, the right gland remained normal in size and consistency, while the left one became small, flabby and slightly sensitive to the touch. The epididymis was represented by several hard irregular nodes.

In some few cases of orchitis arising during the course of influenza or typhoid fever, atrophy has been the result. Much more frequently are cases of atrophy following orchitis arising during mumps. Many cases have been recorded in the past by Boyer and Goubaud long ago stated that in 60 per cent. of cases of mumps he met with orchitis. Curling came to similar conclusions, while Grisolle met with atrophy of the testicle following the orchitis mumps four times in the space of four years. The size of the involved organ diminished to about one-third, and it was markedly indurated. Heller, at the military hospital in Danzig had the opportunity of observing a small epidemic of mumps, and he found that of ten soldiers who developed orchitis, five resulted in atrophy of the testicle, two cases being bilateral. The affected testes were reduced to about half their size and were of soft consistency. Charcot published a case of a soldier who had had mumps seven months previously, complicated with orchitis. Later on, one testicle became atrophied, while at the same time hypertrophy of both breasts occurred, to such an extent that they attained the size of half an orange. In most cases, however, atrophy of the testicle occurs after the organ has been swollen, running a fairly rapid course, and other than its rapidity is somewhat analogous to atrophy of the kidney following nephritis.

Atrophy following the so-called orchitis of rheumatism has only been described by a few English authors. These very rare

cases have been so inadequately studied and incompletely reported that the conclusion must be reached that when atrophy occurs some other factor must be present and which has been ignored. Merely from curiosity, I would point out that Gosselin has reported the case of a youth sixteen years old who was an excessive masturbator, who presented atrophy of both testicles after a slight attack of inflammation which ran its course with swelling and pain. Curling has recorded similar cases.

As many cases of atrophy of the testicle following a traumatic orchitis have been recorded I am desirous of entering into this subject somewhat in detail. Not only diseases of the testicle itself, but also inflammatory processes of the coverings of the testicle, may result in atrophy of the organ. This is particularly true of changes arising in the tunica vaginalis on account of the marked disturbances in the circulation to which they give rise, so that sooner or later atrophy develops. It is quite evident that an extreme degree of hydrocele which has lasted for a long time produces considerable pressure on the testicle over its entire surface, and in these cases the organ shows a very characteristic paleness, which has been termed anaemia of the testicle. By constant increase in the pressure the nutrition becomes more and more impaired and finally pressure atrophy results. Many French surgeons have assumed that atrophy is not the result of the continuous pressure, but is the final outcome of an orchitis which has resulted secondarily from the chronic inflammatory process in the tunica vaginalis. The conditions in hematocele are similar because here again the testicle will often be found anaemic and tightly enclosed within a mass of thick membranes. Under these circumstances atrophy soon results.

Finally, I will point out that atrophy of the testicle may occur in elephantiasis, as has been shown by the reports of English physicians at the leper hospital in Colombo, as well as the records of French physicians from Madeira. That the internal administration of the iodides can give rise to atrophy of the testicle is purely a myth, and cannot be seriously discussed.

A physiological atrophy of the testicle occurs in advanced life, the so-called senile atrophy. The testicle distinctly diminishes in circumference although the atrophy is less marked than in other glandular organs. This senile change of the testicle may begin as early as the fiftieth year, and is characterized by a pericanalicular sclerosis, the resulting process being an atrophy of

the seminiferous tubules with varicose dilatations and cystic formation in the epididymis. It is probable that the chief change resides in the obliteration of the seminal tubules, and this is the result of a venous ectasis occurring generally between the sixtieth and sixty-fifth year of age. The changes in the seminal canals are in the beginning purely mechanical, and it is not until later that a fibrous change in the parenchyma takes place.

I will now consider the purely traumatic type of atrophy of the testicle. Trauma of the testicle may be produced by gunshots, a blow or a knife stab, but the most frequent is certainly a crushing of the organ by some blunt force, such as a kick or falling astride on some hard object. The immediate results of such a contusion are pain of a violent nature, vomiting, dyspnoea and syncope. In very severe cases cardiac paralysis and death may ensue as the result of severe shock. Orchitis and periorchitis arise almost without exception after contusion, and in the severer cases the direst result is a total or partial gangrene of the affected organ. In the milder cases, symptoms finally disappear by appropriate treatment, and a complete recovery takes place.

But generally speaking, the ultimate outcome is atrophy of the organ; in other words the organ shrinks on account of the destruction of its parenchyma, resulting from the development and pressure produced by the connective tissue. The connective tissue formation may already be manifest within a few days after the trauma, while in other cases it may take years for its development. In some instances the process proceeds intermittently. There are periods of complete remission which are followed by acute inflammatory recurrences and this form has been more particularly met with in subjects who by their work, are exposed to repeated contusions. That atrophy is the common result of trauma is made evident by Monod, and Terrillon who found that it took place in thirty-three out of thirty-nine cases of contusion of the testicle.

Experimentally, Rigal has come to some interesting conclusions as to traumatic hypertrophy of the testicle. He used rats for his experiments and crushed their testes between the thumb and index finger. The development of the subsequent symptoms he divides into three stages namely, (1) This lasts from the first to the fifth day during which a reaction appears manifested by hemorrhage, exudation, epithelial proliferation, and the testicle,

whose tunica vaginalis is torn, can no longer be felt. The scrotum feels soft and as if it contained no testicle. (2) This stage lasts from the fifth to the twelfth day and during this time the testicle which can again be felt gives rise to adhesions but at the same time it loses weight and fatty degeneration of the epithelia occurs. There is organization of the connective tissue, reduction in the size of the lumen of the seminal canals and resorption of the exudate. (3) This stage lasts from the twelfth to the fortieth day. There is complete retraction and the testicle is manifestly smaller. The retraction is due to the adhesions. The seminiferous tubules are partially wasted and partially filled with the detritus of the process so that an irreparable atrophy occurs. Of course the division into the three stages is merely for experimental purposes and they merge into each other, but by this description the progress and evolution of the process is well depicted.

In a case of contusion of the testicle, that of a man forty-nine years of age who had received an injury twenty-two years previously to the left gland there had been only transitory pain. He then developed a urethral stricture in the membraneous urethra. Two years previously he had severe pain and an abscess developed in the left side of the scrotum which opened and gave issue to about a teaspoonful of pus. Since then a fistula has remained. The left testicle was found completely atrophied and was not sensitive to pressure. The epididymis was hard but not much, if any, enlarged. The fistula had a tract measuring about 1 centimeter. Here is another very characteristic case. A man twenty-two years of age who was normally developed up to that time, fell from a considerable height and came astride upon a wheel. Since this accident his testicles have atrophied to such an extent that only rudimentary testicles, penis and scrotum remained. Furthermore he has no beard nor hair on the pudis. After the accident he lost all sexual desire. Menod has recorded the case of contusion of the right testicle. Four weeks later the organ was no larger than a hazel nut and the epididymis could be easily distinguished from the organ. A detailed report has been recorded by Tournus des Genets of a man thirty-one years of age who received a traumatism which resulted in destruction of the left testicle while on the right side the integuments of the scrotum were alone injured but, as they healed by granulation, there resulted a contraction of the scrotum so that the testicle was pushed up into the inguinal canal. The patient remained potent,

but for two and a half years after the accident his sexual desire was less than formerly and he complained of some pain, especially when the temperature changed. The testicle was the size of a small nut and the penis diminished in size.

Monod and Terrillon record several cases. The first was a man twenty-four years of age who had had a contusion of the left testicle. The pain was violent but lasted only for a short time. On the following day a large swelling of the left testicle was seen. It was the size of a hen's egg and not very painful. Three weeks later the left testicle was found to be half the size of the right one. The second case is that of a soldier who received a contusion of the left testicle which then became swollen and was very painful. Four weeks later the organ was very atrophic. A man received a contusion of the left testicle by hitting it against an iron post. This was followed by swelling and pain and six weeks afterwards a distinct atrophy of the testicle was found. A cavalry officer, thirty-five years of age, father of several children, received a contusion of the left testicle while riding his horse. The swelling was intense and the pain violent. These symptoms subsided within three weeks but three months later in the middle of the otherwise normal testicle, a circumscribed, almost painless very hard and depressed spot could be felt which was still present a year later and gave the testicle the shape of a bean.

A similar instance has been recorded by Kruche.

Another very characteristic case has been recorded by Poller of a patient twenty-four years of age who had a contusion of the right testicle. Two years later the organ was distinctly atrophic and only about half its normal size. On account of the neuralgia to which this condition gave rise, castration was done which relieved him of his suffering.

That exceptions to the rule occur and that in some few cases even after severe contusion no atrophy results, is demonstrated by the following case published by Howlett. A farmer sixty-five years of age was run over by a wagon, the wheel passing over the left side of the abdomen and at the same time crushing the scrotum considerably. Four years later when the patient presented himself for treatment for spinal trouble the right testicle was found healthy and in its proper place. The left gland was found outside the inguinal ring, the epididymis lying directly against the latter and appeared to be connected with the testicle

by a band which felt like the vas deferens. The testicle itself appeared healthy, was of normal size and not sensitive to pressure. Velpeau reports a case of stab-wound which resulted in atrophy. He had inserted a trocar into the scrotum and had injured the testicle itself. Reaction was very rapid and after a recovery there remained an uneven and partially atrophic testicle. He had mistaken the testicle for a cyst and consequently must have punctured the entire parenchyma.

Gun-shot wounds of the testicle are relatively rare, but in two campaigns Chum found thirteen instances, eight of which resulted in the loss of the organ and three in atrophy. In the second engagement eleven gun-shot wounds were observed, six resulting in loss of the organ, while in five atrophy occurred.

During the old operation for varicocele the spermatic cord was not infrequently injured and particularly the internal spermatic artery which resulted in atrophy of the testicle. I mention this on account of the importance of avoiding this blood-vessel when operating on the cord, because atrophy of the testicle is practically sure to result. Lannelongue was able to cure a tumor of the testicle the size of a fist by ligature of the internal spermatic artery and already on the fifth day a distinct decrease in the size of the growth was noticed. Later on it reached the size of a walnut, was very hard and painless on pressure.

Numerous animal experiments have been undertaken to determine changes in the testicle produced by circulatory disturbances. Thus Miflet, experimenting with dogs, tied the internal spermatic artery or caused embolus to occur therein. He found that destruction of the testicular parenchyma rapidly resulted and the testicle quickly atrophied. The atrophy was due to proliferation of the connective tissue. Dubrowo reached the same result in his experiments performed on Guinea pigs, likewise Griffiths in his experimental work on dogs. From the results reached by experiments, Enderlen demonstrated that a temporary ligature of the spermatic vessels, when lasting for twenty-two hours, is sufficient to produce an irreparable atrophy of the testicle, but he does not state what animals he used in his experiments.

I now come to the consideration of another group of traumatic atrophy of the testicle, the so-called orchitis from strain. This possibility was advanced many years ago by a number of competent observers, but I must confess that I am very skeptical in respect to this. There are three reported cases in which appar-

ently after great body exertion, especially lifting heavy loads, inflammation of the testicle ensued. In all three cases the patients were healthy and young, but I cannot conceive how the traumatic influence of a strain could have in itself been the etiological factor of the orchitis. I am inclined to believe that in these cases residual gonorrhea was present in the prostate or posterior urethra and that the action of the strain was merely secondary in the development of the process. To back up my supposition I would point out that in one case the patient had had gonorrhea eight months previously and soon after the so-called trauma had occurred, a tuberculous orchitis was demonstrated. However I would say that no less authorities than Monod and Terrillon maintain that there is an orchitis from strain, and to uphold this view they record the following case: A laborer, forty-five years of age, had inflammation of the left testicle which was previously healthy, after lifting a very heavy load. When the patient was seen the testicle was reduced to about one-fifth of its normal size and was found near the inguinal ring. It was so painful that castration was resorted to and this resulted in a perfect cure. The testicle after removal was examined and its parenchyma was found replaced by cicatricial tissue and the same condition of affairs was found in the epididymis. Max Meyer has also published a case of supposed orchitis from strain which he carefully observed. The patient was twenty years of age and was thought to have incurred an orchitis from lifting a heavy load. In this case recovery followed in three weeks, and apparently no atrophy resulted.

In extremely frequent cases where displacement of the testicle has taken place the organ is atrophied, and it is very apparent that this atrophy can be traced to some previous and permanent traumatic influence. The cases are relatively rare in which a testicle influenced by purely external causes returns into the inguinal canal or abdomen or takes any other abnormal position, and then become atrophied from the development of fibrous tissue after it has completed its descent into the scrotum in a normal way. Nicoladoni has collected several such cases where one or both testicles have been displaced as the result of a slip, gymnastic exercises or too violent coitus. At all events one will not be far from wrong if these cases are presumed to have an abnormal laxity of the attachments of the seminal gland. I will briefly quote the histories of two cases, the first due to Saltzmann. The pa-

tient, fifty-five years of age, had a luxatio testis twenty-two years previously which occurred during gymnastic exercises. Afterwards, upon several occasions, the testicle became acutely inflamed and when the patient came under observation it was found atrophic and located above Poupart's ligament from which position it could only be slightly moved. The second case has been recorded by Franz. An eighteen-year-old youth received a violent perineal contusion from a fall. When examined four years later the right testicle was found very atrophic and located in the perineal region on the right, where it had been displaced at the time of the accident. It could be distinctly palpated and the tail and head of the epididymis and the spermatic cord could be traced in the inguinal canal. The patient stated that since his accident he no longer had erections.

By far the commonest cause of atrophy from displacement is undescended testicle in the inguinal canal. Such a testicle is exposed to frequent injuries while the pressure of the abdominal walls and movements of the lower limbs cause friction on the organ which in the adult is no longer very movable. From this results an inflammatory swelling which in turn may give rise to symptoms of strangulation. When these testicles are examined microscopically they give the picture of an ordinary atropic process resulting from previous inflammatory lesions. A good example has been published by Hubbard. The testicle had been retained in the inguinal canal on account of the shortness of the spermatic cord; the cremaster was also very short. The testicle which was undergoing degenerative changes on account of constant trauma was very sensitive both spontaneously and on pressure. A multilocular hydrocele was also present and after removal recovery took place. Steer has recorded a case of bilateral inguinal undescended testicle in a patient thirty-nine years of age. Both testicles were atrophic, the penis only slightly developed, while the prostate and seminal vesicles could not be palpated per rectum. The patient was single and stated that he had never experienced sexual desire.

Of great interest are those cases where atrophy of one or both testicles occurs after injury to the brain or spinal cord. In a certain sense they may be classified as traumatic atrophies. As yet the mechanism of the process has not been made clear. Several cases have been mentioned in which after injury to the lumbar vertebrae, or after injuries to the cranium, particularly in the

occipital region, within a few months the parenchyma of the testicle disappeared. These atrophies have been observed in cases of paraplegia and in partial dislocation of the first and second lumbar vertebrae and fractures of the spine. In a case recorded by Larrey a ball grazed the occipital region of a soldier and remained imbedded in the back of the neck. Atrophy of the testicles resulted. Kocher has reported the case of a man forty-one years of age and the father of four children. He fell from a considerable height upon his head. The immediate results were at first only headache and pain in the limbs. Later on twitching occurred and finally the patient became unable to work. From this time on his sexual powers gradually diminished and his beard and pubic hair fell out. Eighteen months after the accident it was completely gone. Later on a right-sided hemiplegia developed and about five years after the accident the left testicle was the size of a hazel nut, the right one the size of a bean. Gorringe's case is similar. Male, sixty years of age, received a violent blow on the back of the neck and atrophy of both testicles occurred accompanied by inflammatory symptoms. Monmollin has also mentioned atrophy of the testicle occurring after injury of the cerebellum. From all this it may perhaps be supposed that a trophic centre for the testicle exists, but in spite of the important work of Morelot the localization of the centre in the spinal cord or cerebellum has not been definitely demonstrated.

When one testicle is only slightly atrophied it gives rise to very little disturbance, but when both organs are involved there is complete impotency or at any rate there is generative impotency. Under certain circumstances certain psychic disturbances occur, such as loss of courage and activity, and to a certain extent, changes in the character.

The impotency resulting from extreme atrophy of the testicle with its unfortunate results on the existence of the individual, is interesting from a medico-legal standpoint. Rieger has recorded the case of a workman twenty-five years of age, who had both his testicles torn out by machinery. After the wound had healed no psychic changes were noted and there was no loss of strength or power to carry out his work. However it was stated that his energy and strength might later become weakened from the loss of his testicles, so that the court granted him very high damages on account of the future possible outcome of his case.

# THE NERVOUS CHILD.

*Address delivered before the Academy of Medicine, Elmira, N. Y., October 21, 1908.*

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I feel particularly gratified in being associated with you at the commencement of a new era in the history of the Elmira Academy of Medicine. Your record in the past fifty-four years has been one of which you can indeed feel proud, and with the opening of these new quarters its continuation in the future is assured. The influence of Elmira, both medically and politically, is far reaching and has exerted a decided influence for good throughout this State.

While conscious of my own limitations, I have chosen as a subject, one which concerns every general practitioner of medicine—the nervous child and his antecedents. There has been a tendency among pediatrists in recent years to pay more attention to the child's personality, ancestry and environment. Physicians recognize a connection between the moral and the morbid condition of the child. This results in a more careful examination into the child's home surroundings and heredity. It is said that children owe to their ancestry the promise of what they may be. Their roots stretch far back into the past. Galton tells us that the child owes one-fourth to each of his parents, and one-sixteenth to each of his grandparents. This parental responsibility should not be overlooked or underestimated.

The neurotic temperament has been defined as a disposition in which the emotions are easily kindled and are controlled and restrained imperfectly and with difficulty. This neurotic disposition may or may not be inherited, but there is no question as to the effect of highly strung, emotional, over anxious and fussy parents on a child during its tender years of development. The environment of the nervous child, as well as his personality, should always be considered in relation to his ailments. Instead of saying "Like father, like son," it should rather be said, "As the father lives, so lives the son."

Excessive emotion in an adult, whether it is restrained or not, is apt to lead to severe physical effects. The circulation is weakened, there is more or less prostration and the processes of metabolism and elimination are disturbed. If this is the case in the adult, the injuries to the nervous system of the child are far more serious. The brain and nervous system of the child are in a state of imperfect development and unstable equilibrium. They are especially sensitive to emotional excitability. It takes a long time to insure the normal and healthful completion of the growth of the brain and improper environment may result in permanent injury.

Oppenheim contends that the responsibility for a child's nervous and physical development rests heavily upon those who provide the environment.

All of us can recall the emotional sufferings of early childhood. Oliver Wendell Holmes said that a glovemaker's sign in the shape of a huge hand terrified him night and day when he was a child.

Fear is the emotion most apt to produce permanent injury in a child of neurotic temperament. Fear implies imagination and the child who suffers most is the most imaginative. Most of the neurasthenia, hypochondriasis and hysteria in adults may be traced to the effects of fear in early life. Guthrie says that "excessive and unnatural timidity in a young infant is a forerunner of neuroses to come. It is shown in starts or screams and trembling at sights and sounds which only excite curiosity or amusement in normal children who are just beginning to take notice. Everything which is new and strange to them begets alarm and their mothers are often unwilling to take them out because they become so frightened at the common objects which they see and the noises which they hear."

Reflex irritation, from whatever source, plays an important rôle in the etiology of the nervous child. This again is due to the physiologic instability and immaturity of the child's nervous system. Removal of the irritation will often produce prompt results. A circumcision frequently will remove many nervous manifestations in a boy. Twice I have seen a functional spastic paralysis of the legs disappear after the removal of a tight foreskin. In a similar manner breaking

down adhesions of the clitoris will have a surprising effect on the disposition and nervous disorders of a neurotic girl.

Gastro-intestinal irritation is one of the most important factors in bringing about this condition and I wish to emphasize more especially chronic intestinal toxemia in this connection. Acute intestinal toxemias are frequent and fatal in infancy producing severe and dangerous nervous symptoms, but as the child grows older these acute toxemias become less common and the chronic intoxications become more frequent and more important. In these cases there is a slow absorption of toxins of an unknown nature which produce a large group of nervous symptoms. Constipation is usually present in these cases, but it may be associated with diarrhea. It must be borne in mind that constipation may exist even if the child has one or more movements each day. If the movements are dry and crumbly or contain scybala it is an indication that they have remained in the intestinal canal for twenty-four hours or longer. In this class of cases intestinal putrefaction and hyperfermentation are shown by the presence of indican in excess in the urine.

Functional nervous disturbances cover a large range of symptoms, but it is not my purpose to enter into a discussion of all the conditions included under this term.

The nervous child is familiar to you all. The diagnosis is made as soon as he crosses the threshold of the office. He resists every effort on the doctor's part to please and he knows no discipline. He insists on pulling books from the shelves and refuses point blank every request from parent or doctor. Any attempt at examination brings forth screams and kicks and the sight of a stethoscope terrifies him.

These children are usually thin and undersized. They are anemic with dark circles around the eyes. They are restless and continually on the move. The appetite is poor and they suffer from attacks of abdominal pain, diarrhea and vomiting without any apparent cause. Constipation is the rule. They may be bed-wetters and are often affected with night terrors.

The lack of appetite is the symptom which produces the most alarm in the mother and which I wish to bring to your attention this evening.

We find babies early in infancy who detect and resent the slightest variation in the taste or temperature of the food.

They instantly appreciate the difference between the sweetness of mother's milk and that of milk sweetened by cane sugar. These are the babies who refuse artificial feeding and make the question of weaning most formidable. Guthrie claims that this hypersensitiveness of taste is one of the earliest characteristics of a neurotic infant. As the child grows older the appetite becomes more capricious. Each innovation and variation in the diet is regarded with unmistakable suspicion. Some detest milk in any form and seem unable to digest it, while others will for years take only milk and refuse to swallow anything solid. Some would like to live on meat and pickles, while others can only relish bread, butter and jam. Some cannot be induced to touch fresh vegetables or fruit, while others would prefer to eat nothing else.

There are many children who require constant coaxing while eating. They must have their attention diverted by a story or a toy. They will take a mouthful for the coachman, for the cook, for the dog, etc., and this entertaining process has to be gone through several times a day. Some children are indulged in their pathologic cravings for improper food on the ground that they eat so little and the mother thought it would not harm him.

To prepare a suitable menu is a matter of perplexity for the idiosyncrasies of the diet of the nervous child pass all understanding and all science.

Sometimes a particular food is abhorred because it raises the memory of some past sickness. A permanent distaste for eggs may be aroused after eating one which is no longer strictly fresh.

The custom of administering medicine in food is a frequent and preventible cause of food aversion. Milk and medicine are incompatible and the memory of the loathsome castor oil floating on warm milk is rarely effaced. To conceal a powder or tablet in a little cake or jam and give it to the unsuspecting child is taking an unfair advantage over youthful simplicity and creates a distrust which is difficult to overcome.

The term *anorexia nervosa* is applied to extreme cases of food aversion and this is now recognized as a distinct disease entity. Forcheimer defines it as one of anorexia in neuropathic children accompanied by loss of weight. It may termi-

nate fatally and no organic lesion can be found. It is a true neurosis or psychosis. The anorexia may be complete or incomplete in that the child takes no food at all or restricts himself to certain articles of diet. There must be an absence of organic lesion to explain the loss of appetite.

The severe cases are closely akin to hysteria or hypochondriasis. In a valuable contribution on the subject, Forcheimer gives the histories of four typical cases, three of which recovered and a fourth died, the latter not being permitted by its parents to come under treatment.

The aim of the family physician should be to make the strongest possible adult out of every child under his care. He must realize the importance of the child's early surroundings and influences. The responsibilities of the parents during the tender years of childhood should be tactfully emphasized. To indulge a child in his whims and appetites invites disaster. While writing this I have a child of two and one-half years under treatment for acute gastro-intestinal catarrh, the result of her insistence for peanuts in a store which the mother allowed for fear she would make a scene and have one of her tantrums.

Gulick in his "Efficient Life" speaks of a mother with five children who invariably took at least one hour a day for rest and quiet, reading alone by herself. As the result of this she kept her health and was a constant joy and inspiration to her children. The environment surrounding these children certainly was not conducive to nervousness. The trouble with most mothers is that they slave for their children so many hours a day that they have no energy left to enjoy and love them and each day's routine seems intolerable drudgery.

The training of the child's nervous system cannot begin too early. Northrup wrote a timely warning on nervous exhaustion in infants. He implores physicians to try and protect the coming generation from nervous exhaustion, nervous dyspepsia, sleepless nights and choreic jerkiness before they have cut their first teeth by teaching the parents the lesson of quiet surroundings.

The young infant whose fond parents feed it too often, handle it too much and keep it in an atmosphere of indulgence and excitement all too frequently becomes the nervous child.

The child is an imitative creature and if the parents expect

to exert proper influence they must hold themselves in check in his presence. Good example should always accompany good advice. Regulation of habits and regularity of eating are necessary and should be continued and insisted upon until they become almost automatic and self-discipline is attained.

Examination of the urine should be made in these cases. Indican is an almost positive indication of intestinal toxemias and of hyperfermentation of the albuminous food stuffs in the intestine and retardation in their passage through the canal. Uric acid in excess has been found in a number of my cases and is significant of faulty metabolism.

These cases must be managed with a firm hand and every unsuccessful attempt to make a child eat, whether by force or persuasion, is a distinct loss of ground.

Some children apparently inspired by the adversary when forced to eat food, will immediately vomit it. When proper discipline is employed and adhered to, most of them will give in.

The best results can only be obtained when the child is removed from his ordinary surroundings. It is almost impossible to convince the parents that this is necessary and that the mother is not the proper person to take care of this kind of case. An infant twenty-two months of age was unsuccessfully treated at his home for anorexia, where he was under the influence of a most neurotic mother. He refused all food and was losing steadily in weight. At the hospital he at once began to take food and in three weeks gained nearly a pound and a half. On the return home the identical symptoms reappeared and after two months he was again brought to the hospital where the appetite at once returned without any treatment whatever. I could quote several such cases.

The feeding is the important and controlling factor in the treatment. A plain diet of milk, eggs, cereals and broths should comprise the nourishment.

Rectal feeding will give only temporary relief and should be employed only in desperate cases. Feeding by gavage is a valuable adjunct and often has a therapeutic value. I have permanently cured several children after one feeding by gavage. Speaking casually to the nurse about its imminent trial is sometimes sufficient to create quite an appetite.

A proper regulation of the feeding hours is important. All

meals should be given at a definite time each day and these hours should never be changed. Too frequent feeding may create a dislike for food. Parents argue that because the child takes so little food he should take it oftener. As the child grows older the intervals are lengthened and the amount of food at meals is increased. Under no condition should milk or food be given between meals.

Fresh air is necessary. Children kept closely confined in the house invariably have poor appetites. Several hours a day in the open air regardless of the season of the year should be insisted upon. A cool, well ventilated sleeping room at night is desirable.

A change of climate from the city to the country, seashore or mountains is often most beneficial but this unfortunately is often impracticable.

A cold sponge each morning has a marked tonic and stimulative effect on the nervous system and is to be advised.

Drugs may have a moral or suggestive value as in the neurasthenia of adults, but too much reliance should not be placed upon them. Mild, pleasant and palatable laxatives can be given to relieve the sluggish condition of the bowels. Iron is indicated for the anemia. The German "eisenzucker" or saccharated iron oxide is easy of administration and more efficacious than the much advertised organic preparations of iron.

The nervous child is the product of our present day methods of living and the genus is rapidly increasing. The object in bringing him to your attention this evening is to emphasize the importance of making the child's surroundings more conducive to quiet growth and development. Let us aim to render life not less strenuous, perhaps, but more efficient.

# REPORT OF A CASE OF CYST OF THE FRONTAL SINUS, COMMUNICATING WITH THE FRONTAL LOBE.

*Read at the Thirtieth Annual Congress of the American Laryngological Association at Montreal, May 11 to May 13, 1908.*

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The following case, because of the apparent rarity of one feature of it, was considered of sufficient interest to be reported.

Cysts of the frontal sinus, particularly mucoceles, are not so very rare, but it is fairly uncommon to find an absence of a large part of the posterior or cerebral wall of the sinus.

The patient, Miss M. B., aged thirty-four years, consulted the writer July 27, 1907. The only interesting point in her history is a severe fall, striking her head, when she was nine years old. She stated that she was unconscious for three days at that time. From that time she has been a sufferer from severe headaches more intense on the left side. She is a worker in a textile mill.

In 1905 she had a nasal operation, the exact nature of which she could not tell me. This gave her some relief. For a number of years she had had a discharge from the left nostril. This she believed followed some work on the teeth on that side. About a year before consulting the writer, her left maxillary antrum had been opened through the canine fossa, and for a time she thought she was a little better.

Her physician Dr. J. B. Ledlie, of Saratoga, who referred Miss B. to me, told me that since July, 1907, her headaches had been unusually severe, particularly on the left side. She also complained of a pressure and fullness over the eyes. There was slight ptosis of the left eye-lid, but no orbital swelling nor displacement of the eye-ball. When she turned her head quickly to the left, or bent forward suddenly, she had great vertigo, and would fall if she could not get hold of some support. Pupils reacted to light and accommodation.

On examination, nothing particularly wrong could be discovered in the nose. There was a small amount of a thin mucopurulent secretion in the left nostril which came from the antrum. On transillumination, the left antral region was slightly darker

than the right, but there was good illumination of both and the pupils were also illuminated.

The left frontal region was darker than the right. This region was also slightly more prominent.

The headaches were becoming so frequent and severe, that she was anxious to have any operation that would relieve her. While there was no direct evidence of a purulent frontal sinusitis, the result of transillumination, with the headaches confined to that side, appeared to the writer sufficiently suspicious symptoms to warrant an operation. This was performed in the Saratoga Hospital in August, 1907. The usual incision through the eyebrow was made and a portion of the anterior wall of the sinus carefully removed. A fluctuating tumor, having the typical appearance of a cyst, presented in the opening. It appeared to contain considerable fluid. An incision was made through the cyst wall and a large amount of a fluid very much like thin mucous escaped. This was unfortunately lost, so that no examination could be made of it. The anterior wall, as well as the floor of the sinus, were found intact, but a considerable portion of the posterior wall was missing so that the pulsation of the meningeal vessels could be seen. The cyst wall in fact appeared to extend through to the frontal lobe.

The sinus was large and somewhat dilated.

The anterior ethmoid cells were then investigated through a separate incision, following the method employed by Coakley. No pus and very little bone necrosis was found. At this time the patient went into a condition of collapse, and it was with great difficulty that we succeeded in reviving her. We could not get a probe through into the nose from the frontal sinus, so that as in cases of mucocele the ostium was probably occluded. As much of the cyst wall as possible was removed, and the frontal wound with the exception of a small opening in the inner angle, closed. A small wick of gauze was carried into the sinus for drainage but in about ten days the gauze was no longer inserted, and the wound allowed to close. The patient made an uninterrupted recovery, and now about ten months after the operation, is apparently perfectly well. She works twelve to fourteen hours a day and has no headaches.

I received a letter from her physician, Dr. Ledlie, a week ago, in which he stated that she was all right and able to do her work every day

A. Logan Turner in his interesting paper, mucocele of the accessory nasal sinuses, reports two cases in which as in the writer's case, absorption of part of the posterior wall of the sinus had taken place.

In six out of seven cases reported by him, absorption of a part or the whole floor of the sinus had taken place.

I will briefly report the two cases in which part of the posterior wall was missing:

Case I.—C. S., a woman aged forty-three years. During the operation it was found that a portion of the posterior or cerebral wall, the size of a half crown, had been absorbed, so that the dura mater was seen pulsating.

Six months after the operation there was no discharge from the cavity. A drainage tube was carried into the nose at the time of the operation and worn for six weeks. It was then removed, and the patient was instructed to wash out the sinus with a curved canula.

In the second case reported by Turner, a woman, aged thirty-seven years, the dura was found exposed over an area as large as a sixpence. The right eye-ball was displaced downwards, outwards and forwards. This was so in the other case also.

In the writer's case there was no orbital swelling,—a common symptom of cyst of the frontal sinus. The anterior ethmoid cells are frequently involved. Patients as a rule do not complain of much pain unless infection of the sinus takes place.

In Turner's cases there was displacement of the eye-ball in seven out of ten.

The displacement depends upon the size of the orbital swelling. Turner states that when the affected sinus extends backwards for a considerable distance along the roof of the orbit, and the mucous contents escape into the orbital cavity after the floor has been absorbed, the eye-ball is pushed forwards and downwards. A previous catarrhal condition of the nasal mucous membrane is the probable cause of such cases.

The ostium of the sinus becomes occluded, causing an accumulation of mucous in the frontal sinus and a gradual thinning and absorption of one or more of the bony walls.

Killian believes that traumatism is an important cause for the development of such cysts.

The writer was only able to find records of a few other cases of cysts of the frontal sinus, in which a large portion of the posterior wall of the sinus was absent, in the literature of the past ten years.

Casali has reported the case of a man, aged forty-one years, who had had a fall, striking the right side of the head eighteen years before consulting him. There was a fluctuating swelling above the supra-orbital. ridge extending down to the middle of the upper eye-lid.

There was also a right exopthalmos.

A clear sterile fluid was obtained on puncturing.

A radical operation was performed. After the anterior cyst wall was

removed the pulsation of the meningeal arteries could be seen. Two hundred cubic centimeters of clear fluid was evacuated.

Histological examination showed that this was probably not a cyst but an enormously dilated frontal sinus. Another interesting case has been reported by Mayer.

This patient, aged fifty-three years, had been twice operated upon for a cyst of the frontal sinus.

A large amount of a yellowish fluid had been evacuated and it was found that the posterior wall of the sinus was missing. The patient survived the first operation, but in a year there was a recurrence, and the second operation had a fatal termination. In the region of the right frontal lobe there was a deep depression produced by the cyst.

In a case reported by Zamazal of severe left sided headaches for two years, there was a sudden flow of pus and blood from the nose just before the patient died. There was an abscess in the region of the frontal lobe which broke through into the frontal sinus.

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# Editorial

## "WHAT IS TEREWTH?"

"To pursue the subject we are endeavoring with our lowly gifts to improve, let us in a spirit of love inquire what is that Terewth to which I have alluded. For, my young friends," suddenly addressing the 'prentices and Guster, to their consternation, "if I am told by the doctor that calomel or castor-oil is good for me, I may naturally ask what is calomel, and what is castor-oil? I may wish to be informed of that, before I dose myself with either or with both. Now, my young friends, what is this Terewth then? Firstly (in a spirit of love), what is the common sort of Terewth—the working clothes—the everyday wear, my young friends? Is it deception? * * * Is it suppression? * * * Is it reservation?"

Charles Dickens.

*Bleak House, Chapter XXV.*

**Therapeutic Research**

That to-day there cumbers the pages of our Pharmacopœia and our text books on materia medica, a great number of drugs either inert, positively harmful, or a weak imitation of some better drug is admitted by most of the medical profession.

That a horde of "new remedies," as a rule of no proven physiologic action, but with exuberant testimonials based upon scattered and frequently untrustworthy clinical evidence, stand clamoring for admittance, we all know.

That the physiologic action of many and the exact composition of others of the official drugs and their preparations are either unknown or in dispute we must shamefacedly admit.

What wonder then that so many of the profession have in despair become, or at least say and think they have become, therapeutic nihilists? What wonder that an undue proportion of recent graduates of medical schools of excellent repute are failing in therapeutics when they take their State board examinations? And is it surprising, so widespread has the knowledge of this disagreement become, that the laity have in such numbers turned from the medical men to the Christian Scientists, the Osteopaths, the Mental Healers, the Emmanuel Movement, and similar cults?

There are signs, however, that the medical profession has at last awakened to its danger, to its anomalous position. For the past four years the Council on Pharmacy and Chemistry of the American Medical Association has been doing excellent work in examining and reporting on "New and Non-Official Remedies." Nothing more significant, however, of our changed attitude towards drugs as therapeutic agents, of our desire to separate the "quick from the dead," has occurred in many years, than the decision of the American Therapeutic Society to appoint a committee to be called the "Standing Committee on Therapeutic Research."

This decision is the direct outcome of a suggestion made by Professor Remington, Chairman of the Revision Committee of the United States Pharmacopœia, at the last meeting of the Society, when he was its guest.

It is not intended that the committee shall examine into or report on the so-called "new remedies," in fact the by-laws of the Society prohibit the introduction by paper or discussion, of secret, patented, or trademarked medical products, but they are to carefully examine into, both by laboratory research and a

thorough sifting of clinical evidence, various drugs and preparations of drugs *now contained in the Pharmacopœia,* the material being obtained from and certified as to its purity by Professor Remington, and to report thereon at the annual meeting of the Society, in order that there may be placed in the hands of the Revision Committee, as well as before the profession at large, trustworthy data, the result of systematic investigation, concerning those remedies which are in daily use.

The members of the Committee as at present constituted are: Frederick H. Gerrish, of Bowdoin College; Oliver T. Osborne, of Yale University; John V. Shoemaker, of the Medico-Chirurgical College of Philadelphia; H. C. Wood, Jr., of the University of Pennsylvania, the Secretary; Spencer L. Dawes, of Albany Medical College, the Chairman.

SPENCER L. DAWES.

✠ ✠ ✠

**Alumni Day, 1909**

Preparation for the annual festival of the College on May 18th, are well under way, and under the active presidency of Dr. Brewer, a successful reunion is assured. The exercises will be modelled after those of the last two years.

In 1907 alumni day was celebrated after a different manner from the custom which had prevailed since the organization of the Association. An informal dinner was given, entertainers were employed, and the evening was given over to amusement. The change appeared to be acceptable. The attendance was larger than ever before, and last year the same style of program met with approbation.

The Committee of Arrangements for 1909 have decided to repeat the plan of these two years. The banquet and entertainment will be informal. It seems to have been proved that alumni day should, in the main, be regarded as a festival of recreation, and the Committee desires to meet their obligation in this direction.

Some of the particular features of the day will be as follows:

Professor Merrill will receive the class of 1884 as his guests at the dinner, thus showing for the second time, his appreciation of a quarter century of hard work in the practice of medicine.

The classes of 1859, 1869, 1879, 1889 and 1899 will hold decennial reunions in rooms assigned in the College building, on adjournment of the Association at noon.

The Albany Medical College, the Bender Hygienic Laboratory, the Albany Hospital, St. Peter's Hospital, the houses of the undergraduate fraternities will be open for visitation and inspection, and extend a cordial invitation to members of the Association to make themselves at home.

A lunch will be given to out of town alumni at the Fort Orange Club.

The following program has been arranged:

9:00 A. M. Informal reception in the College library. The Treasurer will receive unpaid dues.
Registration of attendance.

10:30 A. M. Meeting of the Association in the Amphitheatre.
Faculty Address of Welcome by PROFESSOR ANDREW MAC FARLANE ('87).
Report of Executive Committee and Historians.
Treasurer's Report.
Miscellaneous Business.
President's Address, FREDERIC H. BREWER, M. D., Class of 1878.
Report of Nominating Committee and Election of Officers.

12:00 M. Reunions of Decennial Classes.

1:00 P. M. Luncheon at the Fort Orange Club.

3:00 P. M. Commencement Exercises at Odd Fellows' Hall, DEAN SAMUEL B. WARD, Presiding.
Essay, by WILLIAM HENDERSON DAVIDSON, of the graduating class.
Conferring of degree of Doctor of Medicine by REV. CHARLES A. RICHMOND, D. D., Acting Chancellor of Union University.
Address to the graduating class by ABRAHAM JACOBI, M. D.
Valedictory, by CHARLES JAMES KELLEY, M. D., of the graduating class.
Reports on prizes and appointments by PROFESSOR JOSEPH D. CRAIG.

8:30 P. M. Annual dinner and entertainment at German Hall.

# Public Health

Edited by Joseph D. Craig, M. D.

DEPARTMENT OF HEALTH—ALBANY, N. Y.

ABSTRACT OF VITAL STATISTICS FOR MARCH, 1909.

*Deaths.*

| | 1905 | 1906 | 1907 | 1908 | 1909 |
|---|---|---|---|---|---|
| Consumption | 18 | 17 | 28 | 21 | 21 |
| Typhoid fever | 3 | 2 | 5 | 1 | 1 |
| Scarlet fever | 0 | 0 | 0 | 8 | 0 |
| Measles | 1 | 0 | 2 | 3 | 0 |
| Whooping-cough | 1 | 1 | 0 | 3 | 2 |
| Diphtheria and Croup | 1 | 1 | 4 | 5 | 2 |
| Grippe | 4 | 3 | 2 | 1 | 0 |
| Diarrheal diseases | 1 | 1 | 1 | 4 | 3 |
| Pneumonia | 13 | 19 | 16 | 21 | 8 |
| Broncho-pneumonia | 8 | 6 | 2 | 3 | 1 |
| Apoplexy | 9 | 13 | 7 | 8 | 3 |
| Bright's disease | 21 | 13 | 14 | 19 | 24 |
| Cancers | 7 | 13 | 9 | 8 | 7 |
| Accidents and violence | 6 | 4 | 2 | 6 | 9 |
| Deaths under one year | 24 | 10 | 17 | 31 | 21 |
| Deaths over seventy years | 32 | 28 | 36 | 25 | 22 |
| Total deaths | 161 | 152 | 189 | 179 | 157 |
| Death rate | 18.21 | 17.89 | 21.24 | 21.06 | 18.47 |
| Death rate less non-residents | 16.75 | 17.30 | 15.41 | 19.06 | 16.12 |

*Deaths in Institutions.*

| | 1905 | | 1906 | | 1907 | | 1908 | | 1909 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Resident | Non-resident | Resident | Non-resident | Resident | Non-resident | Resident | Non-resident | Resident | Non-resident |
| Albany Hospital | 8 | 7 | 3 | 16 | 9 | 10 | 10 | 10 | 8 | 13 |
| Albany Orphan Asylum | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Child's Hospital | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |
| County House | 0 | 0 | 4 | 2 | 4 | 2 | 5 | 3 | 4 | 2 |
| Home for Aged Men | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Homeopathic Hospital | 3 | 0 | 0 | 0 | 3 | 0 | 1 | 1 | 0 | 0 |
| Hospital for Incurables | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Little Sisters of the Poor | 4 | 0 | 2 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |
| Penitentiary | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Public Places | 1 | 0 | 0 | 0 | 0 | 1 | 3 | 1 | 0 | 1 |
| St. Margaret's House | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 4 | 0 |
| St. Peter's Hospital | 7 | 2 | 4 | 0 | 5 | 2 | 3 | 0 | 7 | 6 |
| Sacred Heart Convent | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| House of Good Shepherd | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |

| | |
|---|---|
| Births | 121 |
| Still births | 4 |
| Premature births | 2 |

## Bureau of Plumbing, Drainage and Ventilation.

In the Bureau of Plumbing, Drainage and Ventilation there were two hundred and ninety-five inspections made of which one hundred and forty-six were old buildings and one hundred and forty-nine new buildings. There were sixty-five iron drains laid, thirty-six connections to street sewers, thirty-nine tile drains, three urinals, seventy-three cesspools, one hundred and twenty wash basins, one hundred and thirty-seven sinks, one hundred and three bath tubs, ninety-seven wash trays and one hundred and seventy-four tank closets. There were one hundred and six permits issued, of which seventy-three were for plumbing and thirty-three for building purposes. There were forty-three plans submitted of which fourteen were of old buildings and twenty-nine of new buildings. Thirty-seven houses were tested, two with blue or red and thirty-five water tests. Thirty-six houses were examined on complaint and thirty-six were re-examined. Twenty-five complaints were found to be valid and eleven without cause.

## Bureau of Contagious Diseases.

*Cases Reported.*

| | 1905 | 1906 | 1907 | 1908 | 1909 |
|---|---|---|---|---|---|
| Typhoid fever | 4 | 3 | 3 | 7 | 7 |
| Scarlet fever | 7 | 18 | 10 | 97 | 17 |
| Diphtheria and croup | 2 | 10 | 47 | 21 | 5 |
| Chickenpox | 10 | 5 | 8 | 10 | 12 |
| Measles | 454 | 3 | 14 | 326 | 0 |
| Whooping-cough | 0 | 0 | 0 | 0 | 4 |
| Consumption | 3 | 1 | 38 | 56 | 48 |

*Contagious Disease in Relation to Public Schools.*

| | *Reported* | | *Deaths* | |
|---|---|---|---|---|
| | D. | S. F. | D. | S. F. |
| Public School No. 4 | 1 | .. | .. | .. |
| Public School No. 11 | .. | 1 | .. | .. |
| Public School No. 13 | .. | 1 | .. | .. |
| Public School No. 15 | .. | 3 | .. | .. |
| Public School No. 21 | .. | 3 | .. | .. |
| Female Academy | .. | 1 | .. | .. |
| St. Joseph's Academy | .. | 1 | .. | .. |
| St. Patrick's School | 2 | .. | .. | .. |

Number of days quarantine for diphtheria:
Longest..... 35 Shortest..... 7 Average..... 21 2/5
Number of days quarantine for scarlet fever:
Longest..... 45 Shortest..... 18 Average..... 28 2/3
Fumigations:
Houses..... 17 Rooms..... 58

| | |
|---|---|
| Cases of diphtheria reported | 5 |
| Cases of diphtheria in which antitoxin was used | 5 |
| Cases in which antitoxin was not used | 0 |
| Deaths after use of antitoxin | 1 |

### Bender Report on Tuberculosis.

| | |
|---|---|
| Positive | 11 |
| Negative | 36 |
| Failed | 1 |
| Total | 48 |

### Tuberculosis.

| | | | |
|---|---|---|---|
| Living cases on record March 1, 1909 | | | 303 |
| Reported during March, 1909: | | | |
| By telephone | 0 | | |
| By Bender | 8 | | |
| By card | 34 | | |
| | | 42 | |
| Dead cases reported by certificate | | 7 | |
| | | | 49 |
| | | | 352 |
| Dead cases previously reported | | 14 | |
| Dead cases not previously reported | | 7 | |
| | | | 21 |
| Living cases on record April 1, 1909 | | | 331 |

### Total Tuberculosis Death Certificates Filed.

| | |
|---|---|
| March, 1909 | 21 |

### Bureau of Pathology.

*Bender Laboratory Report on Diphtheria.*

| | 1905 | 1906 | 1907 | 1908 | 1909 |
|---|---|---|---|---|---|
| Initial positive | 3 | 7 | 44 | 19 | 4 |
| Initial negative | 17 | 45 | 84 | 90 | 49 |
| Release positive | 5 | 32 | 110 | 44 | 5 |
| Release negative | 0 | 18 | 257 | 56 | 12 |
| Failed | 0 | 0 | 26 | 5 | 12 |
| Totals | 25 | 102 | 521 | 214 | 82 |

Examination for tuberculosis:

| | | | |
|---|---|---|---|
| Initial positive | 10 | 11 | 6 |
| Initial negative | 15 | 14 | 28 |

## Bureau of Markets and Milk.

| | |
|---|---|
| Market re-inspections | 119 |
| Public market inspections | 25 |
| Fish markets inspected | 10 |
| Milk wagons in clean condition | 27 |
| Butter fats below 3% | 1 |
| Butter fats from 3 to 3.5% | 5 |
| Butter fats from 3.5 to 4% | 17 |
| Butter fats over 4% | 4 |
| Solids below 12% | 5 |
| Solids from 12 to 12.5% | 5 |
| Solids from 12.5 to 13% | 6 |
| Solids over 13% | 11 |

## Bureau of Milk.

| | | Butter Fats | | | | Solids | | | |
|---|---|---|---|---|---|---|---|---|---|
| No. | Specific Gravity | Under 3% | 3 to 3.5% | 3.5 to 4% | Over 4% | Under 12 % | 12 to 12.5% | 12.5 to 13% | Over 13% |
| 31 | 33.7 | .. | .. | .. | 1 | .. | .. | .. | 1 |
| 9 | 30.6 | .. | .. | 1 | .. | .. | 1 | .. | .. |
| 71 | 32.7 | .. | .. | .. | 1 | .. | .. | .. | 1 |
| 33 | 33.7 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 46 | 32.6 | .. | .. | 1 | .. | .. | 1 | .. | .. |
| 75 | 33.7 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 86 | 32.6 | .. | .. | 1 | .. | .. | 1 | .. | .. |
| 94 | 31.6 | .. | .. | 1 | .. | .. | 1 | .. | .. |
| 108 | 32.7 | .. | .. | 1 | .. | .. | .. | 1 | .. |
| 146 | 31.6 | .. | 1 | .. | .. | 1 | .. | .. | .. |
| 152 | 32.6 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 160 | 31.6 | .. | 1 | .. | .. | 1 | .. | .. | .. |
| 174 | 35.2 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 176 | 31.6 | .. | 1 | .. | .. | 1 | .. | .. | .. |
| 179 | 32.6 | .. | .. | 1 | .. | .. | .. | 1 | .. |
| 117 | 32.7 | .. | .. | 1 | .. | .. | .. | 1 | . |
| 180 | 30.6 | .. | 1 | .. | .. | 1 | .. | .. | .. |
| 183 | 32.6 | .. | .. | 1 | .. | 1 | .. | 1 | .. |
| 186 | 31.6 | .. | 1 | .. | .. | .. | 1 | .. | .. |
| 185 | 30.6 | .. | .. | .. | 1 | .. | .. | 1 | .. |
| 189 | 34.7 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 190 | 34.1 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 192 | 32.6 | .. | .. | 1 | .. | .. | .. | 1 | .. |
| 193 | 30.6 | 1 | .. | .. | .. | 1 | .. | .. | .. |
| 194 | 32.6 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 191 | 33.1 | .. | .. | .. | 1 | .. | .. | .. | 1 |
| 387 | 32.6 | .. | .. | 1 | .. | .. | .. | .. | 1 |

MISCELLANEOUS.

| | |
|---|---|
| Mercantile certificates issued to children | 26 |
| Factory certificates issued to children | 11 |
| Children's birth records on file | 37 |
| Number of written complaints of nuisances | 33 |
| Privy vaults | 3 |
| Plumbing | 13 |
| Other miscellaneous complaints | 17 |
| Total number of dead animals removed | 437 |
| Cases assigned to health physicians | 90 |
| Calls made | 298 |

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# Society Proceedings

## MEDICAL SOCIETY OF THE COUNTY OF ALBANY.

The regular meeting of the Medical Society of the County of Albany was held in the amphitheater of the Albany Hospital, Wednesday, December 16, 1908, at 8.30 o'clock p. m.

Dr. MACDONALD presided. The following members were present: Drs. Babcock, Bedell, A. J., Blair, Blessing, Case, Classen, Corning, Devoe, Douglass, Draper, Giffen, Gutmann, Hacker, C. G., Harrig, Holding, Jenkins, Laird, Lanahan, Lawrence, Lawyer, Lempe, Le Brun, Macdonald, McKenna, Moore, C. H., Moston, Munson, Murray, Neuman, O'Leary Jr., Papen, Sr., Papen, Jr., Pease, Perry, Pitkin, Rooney, Rulison, H., Rulison, L. B., Sampson, Shanks, Skillicorn, Ullman, Vander Veer, A., Vander Veer, E. A., Van Slyke, Ward, Winne, (48).

Dr. Goodwin, Superintendent of the Albany Hospital, Drs. Bibby, Bendell, J. L., Keigher, the hospital internes and many of the senior students of the Albany Medical College were also present.

On motion of Dr. NEUMAN the minutes of the previous meetings were ordered printed in the ANNALS.

Dr. MACDONALD reported that the Comitia Minora recommended that the delegates to the State Society be instructed to vote for the publication of a directory once every three years, limited to New York State, with an appendix to be issued every year. On motion of Dr. SKILLICORN the recommendation was unanimously adopted.

The Board of Censors reported that the presence of illegal practitioners in the city of Albany had been brought to their attention. Dr. A. VANDER VEER commented on the report. On motion of Dr. H. RULISON the Board of Censors were empowered to employ an attorney to prosecute illegal practitioners.

The following communications were received and placed on file:

THE MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

NEW YORK, *October* 29, 1908.

Dr. J. A. LANAHAN, *Secretary, The Medical Society of the County of Albany, Albany, N. Y.:*

DEAR DR. LANAHAN.—At a stated meeting of the Medical Society of the County of New York, held at the New York Academy of Medicine, 17 West 43rd Street, on Monday evening, October 26, 1908, the following preamble and resolutions were unanimously adopted:

*Whereas,* Resolutions have been received from the Medical Society of the County of Genesee, urging the Medical Society of the State of New York to discontinue the publication of the Medical Directory of New York, New Jersey and Connecticut, and

*Whereas,* The publication of a list of legally authorized physicians of this State is of great value to the public, and the profession, and the continuance of the Directory of the utmost importance, therefore

*Be it Resolved,* That the Medical Society of the County of New York requests its delegates to vote in favor of the continued publication of the Directory, and be it further

*Resolved* That the Secretary be requested to send a copy of these resolutions to all other County Medical Societies of this State, asking them to take similar action.

This action may be taken as voicing the sentiment of the 2,300 members of the Medical Society of the County of New York, as the attendance was representative and unusually large, and there was no dissenting voice.

Yours very truly,

JOHN VAN DOREN YOUNG,
*Secretary.*

(Dic. J. V. D. Y.)
(M. E. R.)

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*Whereas,* Resolutions have been received from the Medical Society of the County of Genesee, urging the Medical Society of the State of New York to discontinue the publication of the Medical Directory of New York, New Jersey and Connecticut, and

*Whereas,* The publication of a list of legally authorized physicians of this State is of great value to the public and the profession, and the continuance of the Directory of the utmost importance; therefore be it

*Resolved,* That the Medical Society of the County of Westchester requests its delegates to vote in favor of the continued publication of the Directory, and be it further

*Resolved,* That the Secretary be requested to send a copy of these resolutions to all other County Medical Societies of this State asking them to take similar action.

State Charities Aid Association,
United Charities Building,
*New York, Nov.* 24, 1908. 105 East 22d Street.

*To Officers of the County Medical Societies:*

I beg to send you herewith a book containing the proceedings of a notable meeting held in Albany in January last, opening the State campaign for the prevention of tuberculosis. The pamphlet contains also an account of the campaign as carried on in various cities last winter and which will also be continued along similar lines the coming winter. This book also gives some striking statistics among which is the comparative mortality from tuberculosis in various cities in the State, on page 66. This table is I think the first of this kind ever prepared.

You will no doubt be interested also in the text of the new Tuberculosis Law on page 92, for the enforcement of which the State Department of Health is at present preparing the necessary blanks, and we feel confident that its support by the physicians of this State will make the operation of this timely legislation effective, and that its enforcement will result in much good.

Very truly yours,
John A. Kingsbury,
*Assistant Secretary.*

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American Medical Association.

Bowling Green, Ky., *October,* 26, 1908.

My Dear Doctor.—This is an official letter to you as an officer of your County Society and I am directed to request you to transmit it to the society for action.

The enclosed reprints will in some measure explain to you the movement for a National Department of Public Health in the existing Interior Department long advocated by this Association, more recently so actively led by the Committee of One Hundred, and which is now endorsed in the platforms of both great political parties.

The conference of heads of bureaus and divisions, and others interested in public health work, indicated in the reprints, was held at the Cosmos Club, Washington, D. C., September 27th. It was called under the auspices of the Committee of One Hundred, as had been agreed upon at a preliminary meeting held in New York in August.

Prior to the conference, Prof. Irving Fisher, Chairman of the Committee of One Hundred, and I had an audience with President Roosevelt in regard to its purposes. We were authorized by him to inform the conference that a plan for a grouping of the principal bureaus performing public health functions under one of the existing departments had been made a policy of his administration.

The conference received this message from the President with great satisfaction and, after full consideration, decided enthusiastically to ask all those interested in securing what is practically a National Department of Public Health and that without the necessity of enlarging the Cabinet, to bring all possible influence to bear upon their senators and representa-

tives in support of this policy. We anticipate that the President will urge Congress to take action this winter.

The proposed legislation has the support not only of the President, the health bureaus, including the Public Health and Marine Hospital Service, but also of the great health organizations, such as the American Medical Association, the Committee of One Hundred, the American Health League, the American Public Health Association, the Conference of State and Territorial Boards of Health, the Federation of Fraternal Societies, the United Mine Workers of America, and numerous others. But it is necessary, in order to secure legislation, that all this backing shall make itself known to Congress. A large majority of congressmen who have expressed themselves on this subject are favorable, provided the health forces are united in desiring such legislation.

The purpose of this letter and enclosures is to secure the active co-operation of your County Society in this work. Will you not consider the matter at the first opportunity, calling a meeting if necessary, appoint committees for conference or correspondence with your senators and the candidates for Congress, or if this reaches you too late to reach the candidates before election, that you see your congressman before he comes to Washington, and inform me by next mail of such action?

At this juncture much may be accomplished by the prompt writing of letters to the candidates for re-election to Congress and to congressmen-elect. I hope that many thousand letters (not stereotyped, but personal) may be sent to congressmen during the next three weeks, urging support of President Roosevelt's policy of concentrating health bureaus into one department, and requesting a statement of their attitude in political speeches to constituents and personally.

The Committee of One Hundred, largely composed of and led by the political economists of our great universities, tell us that more than 500,000 deaths occur in this country every year from diseases which are strictly preventable, 150,000 of them being from tuberculosis, 50,000 from typhoid fever, and about 80,000 from the improper feeding of children. Only 210,000 men were killed in both armies during the five years of the Civil War, while 750,000 people have died from tuberculosis within the past five years, and 250,000 from typhoid fever. On the other hand, our government has expended over $40,000,000 within the past ten years, and now proposes to expend $250,000,000 more in the prevention of tick fever in cattle, cholera in hogs and chickens, scab in sheep and pests to crops and trees, but is taking no steps to protect men, women and children from these domestic pestilences, so important to families and homes.

We want the support of your senator and representative and have no chance of securing it except through your influence. I am asked to go to Washington during the coming session of Congress in the interest of this movement. Realizing that any efforts of mine will have value only as they are supported by the County Societies and profession of the entire country, and pleading for such early and effective action as will give results, I am,

Very truly yours,

J. N. McCormack.

The following scientific program was presented:

Dr. LAIRD presented cases of tuberculosis, explaining the use of tuberculin and demonstrating the cutaneous tests.

Dr. WINNE presented a case of typhoid fever complicated with a pus kidney, and also a case of arthritis deformans.

Drs. WARD, VANDER VEER, A., MACDONALD, ROONEY, GUTMANN, LAIRD and WINNE discussed the cases.

Dr. WARD explained the method of obtaining blood pressure, and Dr. CORNING demonstrated the use of the Gaertner and Stanton apparatus.

Dr. NEUMAN presented four cases of ulcer of the stomach.

Dr. GUTMANN presented a case of intussussception in a child of seven months.

Dr. A. J. BEDELL presented a case of thrombosis of the lateral sinus.

On motion of Dr. WARD the society adjourned.

W. G. MACDONALD, *President.*

JOSEPH A. LANAHAN, *Secretary.*

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# Medical News

**Edited by Arthur J. Bedell, M. D.**

THE ALBANY GUILD FOR THE CARE OF THE SICK—DEPARTMENT OF VISITING NURSES—STATISTICS FOR MARCH, 1909. Number of new cases, 180; *classified as follows:* Dispensary patients receiving home care, 16; district cases reported by health physicians, 8; charity cases reported by other physicians, 74; moderate income patients, 82; old cases still under treatment, 102; total number of cases under nursing care during the month, 282. *Classification of diseases for the new cases:* Medical, 50; surgical, 16; gynecological, 3; obstetrical under professional care, mothers, 54; infants, 53; eye and ear, 3; skin, 1; throat and nose, 0; infectious diseases in the medical list, 10; removed to hospital, 7; deaths, 9.

*Special Obstetrical Department.*—Number of obstetricians in charge of cases, 2; medical students in attendance, 2; Guild nurses in attendance, 4; patients, 2; visits by head obstetrician, 8; visits by attending obstetrician, 1; visits by students, 25; visits by nurses, 26; total number of visits for this department, 60.

*Visits of Guild Nurses* (all departments).—Number of visits with nursing treatment, 1,445; for professional supervisions of convalescents, 323; total number of visits, 1,768; cases reported to the Guild by 5 health physicians and 48 other physicians; graduate nurses 6; certified nurse, 1, and 8 pupil nurses on duty.

*Report of Nurses Work at South End Dispensary.*—Number of clinics attended, 60; number of old patients, 553; number of new patients, 129. *Classification of clinics held:* Surgical, 14; nose and throat, 9; lung, 14; skin and genito-urinary, 9; children, 13; gynecological, 9; nervous, 5; stomach, 5; dental, 2; medical, 13; eye and ear, 9.

Medical Interne—Government Hospital for the Insane.—The United States Civil Service Commission announces an examination on June 16, 1909, at the places mentioned in the list printed hereon, to secure eligibles from which to make certification to fill at lest two vacancies in the position of medical interne (male), Government Hospital for the Insane, Washington, D. C., at $600 per annum each, with maintenance, and vacancies requiring similar qualifications as they may occur in that hospital.

From the grade of medical interne the hospital makes promotions to the next higher position in the medical staff as vacancies occur.

As considerable difficulty has been experienced in filling vacancies in the position of medical interne in the Hospital Service during the past several years owing to the limited number of eligibles available, qualified persons are urged to enter this examination.

The examination will consist of the subjects mentioned below, weighted as indicated:

| *Subjects* | *Weights* |
|---|---|
| 1. Letter-writing (the subject-matter on a topic relative to the practice of medicine) | 5 |
| 2. Anatomy and physiology (general questions on anatomy and physiology, and histologic or minute anatomy) | 10 |
| 3. Chemistry, materia medica, and therapeutics (elementary questions in inorganic and organic chemistry; the physiologic action and therapeutic uses and doses of drugs) | 15 |
| 4. Surgery and surgical pathology, (general surgery, surgical diagnosis, the pathology of surgical diseases) | 20 |
| 5. General pathology and practice (the symptomatology, etiology, diagnosis, pathology, and treatment of diseases) | 25 |
| 6. Bacteriology and hygiene (bacteriologic methods, especially those relating to diagnosis; the application of hygienic methods to prophylaxis and treatment) | 10 |
| 7. Obstetrics and gynecology (the general practice of obstetrics; diseases of women, their pathology, diagnosis, symptoms, and treatment, medical and surgical) | 15 |
| Total | 100 |

Applications will be accepted only from persons who indicate in answer to question 17 of the application form that they have been graduated from reputable medical colleges not more than two years prior to the date of the examination.

Both men and women will be admitted to this examination. Applicants must be unmarried.

Age limit, 20 years or over on the date of the examination.

This examination is open to all citizens of the United States who comply with the requirements.

This announcement contains all information which is communicated to applicants regarding the scope of the examination, the vacancy or vacancies to be filled, and the qualifications required.

Applicants should at once apply either to the United States Civil Service Commission, Washington, D. C., or to the secretary of the board of examiners at any place mentioned in the list printed hereon, for application Form 1312. No application will be accepted unless properly executed and filed with the Commission at Washington. In applying for this examination the exact title as given at the head of this announcement should be used in the application.

As examination papers are shipped direct from the Commission to the places of examination, it is necessary that applications be received in ample time to arrange for the examination desired at the place indicated by the applicant. The Commission will therefore arrange to examine any applicant whose application is received in time to permit the shipment of the necessary papers.

The Tuberculosis Committee of the State Charities Aid Association has just made its annual report and also makes the important announcement that the following have been appointed members of this Committee by the President of the Association, Hon. Joseph H. Choate: Hon. Thomas R. Proctor, Dr. Wm. Gibson, Utica, N. Y.; Miss Mary Marshall Butler, Dr. Oscar H. Rogers, Yonkers; Mrs. F. R. Hazard, Hon. Dennis McCarthy, Syracuse; Hon. Daniel B. Murphy, Hon. Jos. T. Alling, Rochester; Miss Mary Fuller, Mr. Robert Cluett, Troy; Rt. Rev. Richard H. Nelson, Bishop-Coadjutor of Albany, Dr. Andrew S. Draper, Hon. John Williams, Mr. Charles Gibson, Albany; Dr. John J. Pryor, Hon. Frederick Almy, Buffalo; Mrs. J. Sloat Fassett, Elmira; Mr. E. F. Peck, Schenectady; Dr. Jacob Gould Schurman, President Cornell University, Ithaca.

As the work of this committee is carried on outside of New York City, it has seemed desirable to increase the membership by the appointment of these representative citizens interested in work of this character in various parts of the State.

In the year March 16, 1908 to March 16, 1909, the following cities have been visited with a traveling tuberculosis exhibition in the course of the co-operative campaign carried on between the State Department of Health and the State Charities Aid Association: Canandaigua, Geneva, Auburn, Cortland, Elmira, Binghamton, Oswego, Cohoes, Poughkeepsie. 108 public meetings were held in connection with the exhibition at which there were 253 speakers and over 300,000 pieces of literature distributed. Exhibits on the nature, cure and prevention of tuberculosis were also sent to 36 county fairs. These were visited by more than a million people. About 25,000 personal letters were sent to people throughout the State referring to the campaign in various ways and 150,000 pieces of educational matter were sent out from the central office; altogether nearly 1,000,000 pieces of such matter have been distributed in the course of this year's work.

As the result of the campaign in this State, Oneida, Ontario and Rens-

selaer Counties and Elmira will have hospitals for the care of advanced cases of consumption. Albany, Schenectady, and Dobbs Ferry will have day camps. Dispensaries have been opened in Utica, Rome, Troy, Albany and Schenectady and visiting nurses have been provided in these places. These hospitals, dispensaries, etc., involve an expenditure of public and private funds for construction and first year's maintenance of over $700,000.

As a result of the establishment of a tuberculosis pavilion in Albany through organized labor and the efforts of Mr. Danahy, Director of the Labor Department of the State Charities Aid Association, a great wave of interest in the subject on the part of the wage earners is spreading over the State and plans are under way for pavilions and hospitals in several cities in the State.

The committee announces no definite plans for the coming year except that after the close of campaign in Yonkers this week the exhibition and propaganda work will go on in the cities of Newburgh, Middletown and Kingston, where the campaign closes May 22nd. It has not been decided whether the county fairs will be visited again this year or not. Gov. Hughes strongly urged this at the annual meeting of the Association in Albany, February 2nd, and it has generally been considered an admirable plan.

New Maternity Hospital and Infants Home.—On Thursday, March 25th, the Francis Elliott Austin Maternity Hospital at 95 Elm street, Albany, was opened for the reception of patients. This institution is in charge of the Sisters of Charity, although patients of any denomination are welcome. The attending staff has not as yet been appointed.

Testimonial to Dean Holland.—The students, associates, and friends of Dr. James W. Holland, dean of Jefferson Medical College for twenty-one years, have arranged to secure a suitable portrait of him and present it to the college, as a mark of esteem in which he is held by them.

Dr. Richmond Assumes Duties at Union College.—The Rev. Dr. Charles A. Richmond informally assumed his new duties as president of Union College late in March. His policy, he said, will be one of co-operation with the students, and any phase of college life which will tend to their benefit will receive his hearty support. President Richmond was tendered a reception by the student body in Silliman Hall on April 7.

Medical Society of the County of Schenectady.—Mr. James Taylor Lewis, attorney for the Medical Society of the State of New York, delivered an address on "Medical Defense," and Dr. C. A. MacMinn read a paper on "The limitations of X-Ray in Fractures from a Diagnostic and Medico-legal Standpoint with the Presentation of a Case," at the last regular meeting of the Medical Society of the County of Schenectady held at the Mohawk Golf Club, Wednesday, April 21, 1909.

Medical Society of the County of Montgomery.—At the Central Hotel, Amsterdam, on March 24, 1909, at 8 p. m., members of the Society and

many invited guests from the surrounding cities listened to an address by Dr. Deaver, of Philadelphia, on the result of "One Hundred Herniotomies." Discussion was opened by Dr. Macdonald of Albany. A buffet lunch was served.

Medical Association of Troy and Vicinity.—A special meeting of the Medical Association of Troy and vicinity was held at the Court House, Troy, N. Y., on April 6, 1909, at 8.30 p. m. The following papers were read: "The Occurrence of a Rectal Shelf in cases of Malignant and Inflammatory Disease Involving the Peritoneum. A Neglected Rectal Sign," by Prof. George Blumer, Yale University. "The Rôle of Digestion in Nutrition: Its bearing on some Problems of Practical Dietetics," by Prof. Lafayette B. Mendell, Yale University. At the close of the meeting there was a buffet luncheon at the Troy Club.

Senn Club.—At the meeting of the Senn Club, held March 26th, it was decided to perpetuate the memory of Nicholas Senn and to bring before the public, lay and professional, the valuable services rendered by Dr. Senn. The means to be employed for this purpose will be decided on later. Dr. Alex. Hugh Ferguson was unanimously elected president of the Club, and Dr. Arthur MacNeal was re-elected secretary.

Schenectady Academy of Medicine.—The Clinical Society of Schenectady has after two years of successful operation organized itself into the Academy of Medicine. The names of the members of the society appear in the March number of the Annals. Meetings are held every week from October 1st to May 1st of each year. Three clinical cases are presented at each session.

County Hospitals for Tuberculosis.—A bill providing for the establishment by counties of local hospitals for the care of persons suffering from tuberculosis was introduced in the Senate, April 1st, by Senator Hamilton, of Chautauqua County; an identical bill being introduced in the Assembly by Mr. Whitney of Saratoga. One striking provision of this bill is that these hospitals may take private patients as well as those whose care is paid for by the county either in whole or in part, as heretofore the only provision was for the indigent poor at the poor house. These hospitals are not to be a part of the almshouse, but are to be under the administration of an expert superintendent responsible to a board of managers, appointed by the board of supervisors. This bill was drafted by the State Charities Aid Association after an exhaustive study of recent legislation, reports of special commissions of this State and also abroad.

This makes it possible for the counties to provide not only for the advanced cases but for hospital cases as well, and in this manner to hold out hope for the apparently hopeless, a policy which according to its defenders will be responsible for the saving of thousands of those who would otherwise abandon hope and die. Another significant feature of this bill is its provisions (when vacancies permit) for the reception in such hospital maintained by any county of patients from neighboring counties willing to pay for this humane care of their poor patients.

Schenectady City Tuberculosis Dispensary.—This dispensary opened June 21, 1908, under the charge of Drs. L. A. Gould, N. A. Pashayan and Peter McPartlon. During the remainder of the year the attendance at the dispensary has been large and has securely established the wisdom of the views that led to its opening. The money necessary to establish the dispensary was arranged for by transfer, from different items of the budget, of various small amounts sufficient for the purpose. In the development of the work of the dispensary it was found that many cases were detected in the early stages of the disease, not alone those who applied for an examination, but by examination, of physicians, members of families of consumptives who had no special reason to believe that they were infected. Different cases were sought out and visited by the visiting nurse and instructions given as to their care and modern methods of prevention. Sputum cups, handkerchiefs and other means to control the spreading of the disease were furnished by the dispensary. Seventy-nine persons were examined, thirty-seven being diagnosed as tuberculous, sixteen being under observation. The average age of patients examined was thirty and one-half years. Out of sixty-eight specimens of sputum examined twenty-eight were found positive. The patients have made one hundred and ten calls at the dispensary after the first examination. The nurse has made three hundred and fifty-eight calls at the patients' homes.

Albany College of Pharmacy.—The commencement exercises of the Albany College of Pharmacy were held in Odd Fellows Hall, Tuesday evening, April 20, 1909. Dean Willis G. Tucker presided and Prof. Alfred B. Huested presented the prizes. After the graduating exercises the Alumni Association held its banquet at the Ten Eyck.

Personals.—Dr. Albert Vander Veer (A. M. C., '62) and Dr. James N. Vander Veer (A. M. C., '03) have returned from a trip to the Pacific Coast.

—Dr. Robert W. Bell, Jr. (A. M. C., '92) has removed from Claverack, N. Y. to Chatham, N. Y., and will occupy the office of the late Dr. J. T. Wheeler.

—Dr. George B. Pearson (A. M. C., '97) is practicing at Middletown, Del.

—Dr. Edward C. Podvin (A. M. C., '98) is at No. 301 East Fordham Road, New York City.

—Dr. A. H. Traver (A. M. C., '98) has purchased the house No. 217 State street, Albany.

—Dr. E. A. Vander Veer (A. M. C., '98) recently purchased a new home, No. 156 State street, Albany, N. Y.

—Dr. Gerald Griffin (A. M. C., '01) after several months at Johns Hopkins, Baltimore, has resumed his Albany practice.

—Dr. John H. Gutmann (A. M. C., '02) and family, who have been touring through the West, have returned home.

—Dr. E. F. Sibley (A. M. C., '03) formerly of Albany, is in Kingston, N. Y.

—Dr. H. E. Hoyt (A. M. C., '04) has been appointed assistant physician to the Soldiers Home at Moroton Heights, Conn.

—Dr. Kenneth D. Blackfan (A. M. C., '05) formerly of Cambridge, N. Y., is now doing special work as resident pathologist at St. Christopher's Home, Philadelphia.

—Dr. F. C. Conway (A. M. C., '06) has given up the idea of practicing in the West, and has returned to Albany, N. Y.

—Dr. W. D. Collins (A. M. C., '07) is practicing at Valatie, N. Y.

—Dr. R. P. Harris (A. M. C., '08) has resigned from the resident staff of the Albany Hospital and started practice at Athens, N. Y.

Married.—Dr. Harold C. Goodwin, Superintendent of the Albany Hospital, and Miss Sarah McCann were married April 14, 1909.

—Dr. Rosslyn P. Harris (A. M. C., '08) and Miss Susan Marion McKenna were married on April 21, 1909, at Rhinebeck, N. Y.

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Deaths.—Dr. Henry K. McLean (A. M. C., '50) died at his home in Hoosick Falls, April 8, 1909.

—Dr. Frank T. Kunker (A. M. C., '83) died at his home in North Chatham, N. Y., March 25, 1909.

—Dr. Harry O. Fairweather (A. M. C., '96) died on April 8, 1909, in Troy, as the result of a fracture of the skull by falling from a ladder at a fire in Troy.

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## In Memoriam

### Henry LaHann, M. D.

Dr. Henry LaHann, probably one of the best known medical men of his county, died at his home in Burlington, Wisconsin, December 16, 1908, after suffering for several months from a complication of diseases. Dr. LaHann was born in Troy, New York, March 5, 1857, and was consequently fifty-one years old. He was educated in the schools there and then entered the Albany Medical College, from which he graduated with honors in 1878. After spending several months as physician in a hospital there he went west and settled in Galesburg, Illinois, where he practiced until 1885, when he removed to Burlington, where he has since practiced. In a short time he had a practice that kept him busy day and night. He had remarkable success and soon became a local authority.

Dr. LaHann married Miss Hulda Rakow in 1887. She with two sisters and a host of friends are left to mourn his death.

Dr. LaHann was a member of Alpha Lodge No. 155 A. F. & A. M., and of the Knights of Pythias.

## Frank T. Kunker, M. D.

Frank T. Kunker, M. D., died from pneumonia March 25, 1909, and was buried by the Masonic Society on Sunday, March 28th. He is survived by a widow, one daughter and one son. Dr. Kunker graduated from the Albany Medical College in 1883, and went to North Chatham, where he has been until his death. He was born in Watervliet, fifty-one years ago. He was a member of the Columbia County Medical and State Societies. The doctor was much beloved by his patients, and much respected in his home, he built up a large practice, and two years ago he built a fine house, and was nicely fixed for an enjoyable evening of old age. T. Floyd Woodworth.

## Harry O. Fairweather, M. D.

The death of Dr. Harry O. Fairweather occurred at the Troy Hospital on April 8, 1909, as the result of injuries sustained two days before at a fire in the City of Troy. While ascending a thirty-foot ladder to the third floor of a burning building, for the purpose of directing a stream on the blaze, the ladder broke, throwing the physician to the sidewalk below, a distance of about twenty feet. He struck on his head and suffered a compound fracture of the base of the skull. Dr. Fairweather was removed to the Troy Hospital and at that institution every assistance possible was given to the injured man. Dr. Fairweather was unconscious almost continually following the accident, with the exception of a brief period on the afternoon of the second day. Shortly after midnight of the same day he began to sink rapidly and the end came early the following morning.

Dr. Harry O. Fairweather, who was one of the most prominent among the younger physicians of Troy, and also had an excellent record as a soldier and fireman, was born in the City of Troy, N. Y., on June 12, 1873. He was the son of Mr. and Mrs. Alexander Fairweather of that city, and received his early education in the public schools of Troy, and at the Troy Academy, graduating from the latter institution in 1892. He graduated from the Albany Medical College in 1896, and after taking a two years' post-graduate course at Johns Hopkins University, Baltimore, Md., was admitted to the practice of medicine in 1898. In 1892 Dr. Fairweather enlisted in the Sixth Separate Company and was assigned to the Hospital Corps. In that capacity he performed duty with the company in the South during the Spanish War. In 1904 he became assistant surgeon of the company, with the rank of First Lieutenant, which position he held until March 16, 1908, when he was nominated assistant surgeon of the Second Regiment, with the rank of Captain. The nomination was subsequently confirmed by Governor Hughes. Dr. Fairweather was devoted to National Guard work, and was popular with his fellow officers. It was announced only a few days ago that he was to be assigned to duty at the State camp at Peekskill the coming summer. He was also an ardent fireman, and responded to all alarms both day and night. Although not reckless, he was courageous, and was always one of the most active workers. He was a member of the Read Steamer Company several years

and served as its captain during 1904 and 1905. Dr. Fairweather was a member of Troy Lodge, B. P. O. Elks, and had held the position of esteemed lecturing knight. He was a member of the Rensselaer County Medical Association and the Medical Society of Troy and vicinity, and for several years had been a member of the Troy hospital staff. He was considered an expert eye, nose and ear specialist. He was also a member of the State Association of Military Surgeons and was a United States pension examiner for this district.

On January 30, 1907, Dr. Fairweather married Miss Rosella Higgins of Troy.

Dr. Fairweather attended the Universalist Church.

In his professional life Dr. Fairweather although a comparatively recent medical graduate, had an extensive practice, and was held in high esteem by his associates on the staff of the Troy Hospital.

As a citizen he was a man of high character, an advocate of clean and honest civic government and progressive methods; his heart was full of kindness, and his personality attractive to all of which a host of friends could testify.

The announcement of Dr. Fairweather's death occasioned universal sorrow.

J. M. Berry.

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# Current Medical Literature

## REVIEWS AND NOTICES OF BOOKS

*Orthopedic Surgery for Practitioners.* By Henry Ling Taylor, M. D., Professor of Orthopedic Surgery and Attending Orthopedic Surgeon, New York Post-Graduate Medical School and Hospital; Assistant Surgeon, Hospital for the Ruptured and Crippled, New York, assisted by Charles Ogilvy, M. D. and Fred H. Albee, M. D. With two hundred and fifty-four illustrations. D. Appleton and Company, New York and London, 1909.

"Orthopedic Surgery," by Henry Ling Taylor, M. D., assisted by Charles Ogilvy, M. D. and Fred H. Albee, M. D., in a volume of some five hundred pages in which the subject of Orthopedic Surgery is considered in three divisions; general, special and technical. The book will be read with great interest by all orthopedic surgeons who will appreciate the clearly expressed views of the authors and the carefully selected and well reproduced illustrations. However, to quote from the preface, "This book aims to give an outline of the essential facts in regard to deformities and crippling affections for daily use in general practice."

The beginning deformities and crippling affections that it is within the province of orthopedic surgery to treat are usually seen in their incipiency by the family doctor or general practitioner and it is their duty to be able to recognize them and institute timely treatment.

The discussion of treatment throughout the book is clear and to the point. There has always been much that was useless and superfluous in orthopedic practice but as is now pointed out, "The tendency and aim of the best modern practice is toward radical results by simple methods."

J. MC W. B.

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*Scientific Laboratory Help in Diagnosis.* By HENRY R. HARROWER, M. D. A Little Book for the Guidance of the General Practitioner and the Specialist, showing the Usefulness and Advantage of the Laboratory Report. 32 pages. The Abbott Alkaloidal Company, 1416 E. Ravenswood Park, Chicago, Ill., 1908.

While this little pamphlet is without doubt written primarily for the benefit of the Abbott Alkaloidal Company, as can be easily detected, yet it must secondarily be of use to that class of practitioner who has not had the benefit of a modern medical education. About half of its pages are used in telling How to Read Reports, with Important Urinary Findings, the Significance of Abnormal Constituents of the Urine, tables of Urinary Findings and of "findings" in other conditions, The Blood Smear, and Cytodiagnosis. The remaining half or other sixteen pages tell how to collect specimens, postal rates and a price list of an outfit for sending specimens.

S. L. D.

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*Manual of Psychiatry.* By J. ROGUES DE FURSAC, M. D. Formerly Chief of Clinic at the Medical Faculty of Paris, Physician in Chief of the Public Insane Asylums of the Seine Department. Authorized Translation From The French. By A. J. Rosanoff, M. D. Second Assistant Physician, Kings Park State Hospital, N. Y. Second American From The Second French Edition, Revised and Enlarged. New York: John Wiley & Sons. London: Chapman & Hall, Limited, 1908.

Modern psychiatry only represents a certain stage of the revolutionary changes which this branch of medicine is undergoing. Without presuming to predict the future tendencies, it must be conceded that for the present at least the school of Kreapelin is in the ascendancy and his teachings are received with more universal favor. De Fursac's manual embodies Kreapelin's views in all essentials with the exception of Magnan's "Systematized Delusational Insanity," which is considered as a distinct psychosis while Kreapelin includes it under the head of Dementia Precox.

The book is divided into two parts. Part I is devoted to general psychiatry, which concerns itself with the etiology and the symptomatology of mental diseases. The various disorders of sense-perception, consciousness, memory, attention and association of ideas are described with remarkable directness and lucidity. As a matter of fact we are familiar with few books that treat morbid psychology with equal conciseness and perspicuity and with none that excel it.

Part II deals with special psychiatry, viz.: the study of psychoses. In this second edition a very important addition is made in incorporating the history of some cases, illustrating the types of different psychoses. Even with this valuable addition we cannot speak with much praise of this part of the book. This criticism, however, applies to the manner of description only. The etiology, mental and physical symptoms, pathological anatomy and treatment have received full consideration but the manner of presentation is sketchy, fragmentary, often stereotyped and dogmatic and lacks coherency and organic vitality. Were it not for the clinical record of a few cases appended, it would have been hard for the non-initiated to form an adequate conception of the disease types described.

The translator has well performed his part and the few additions in brackets here and there are timely and instructive.

N. A. PASHAYAN.

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*International Clinics.* A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Treatment, Medicine, Surgery and the Specialties; by leading members of the medical profession throughout the world. Edited by W. T. LONGCOPE, M. D., Philadelphia, Pa. Vol. iii, Eighteenth Series, 1908. J. B. Lippincott Company, Philadelphia.

A volume of some three hundred pages reflecting the latest thought of the medical world. Among the articles of special interest to the reviewer are: *Sciatica:* Its nature and treatment by Sir Dyce Duckworth. The author considers the condition to be one of a neuritis, rather than a neuralgia, of the largest nerve in the body. The essential element of treatment he considers to be rest in a warm bed; topical applications are seldom of decided benefit; there is no specific treatment.

*The Treatment of Pertussis by Fluoroform,* by Paul L. Tissier, gives expression to a new idea in the use of fluoroform water for whooping-cough; he believes he has found "almost a specific" by (1) decreasing the number and intensity of the paroxysms; (2) mimimizing the dangers of complications; (3) shortening the duration of the disorder. The dose ranges from one drop in young infants to one teaspoonful in adults.

*The Modern Treatment of Fractures by Means of Direct Internal Splintage,* by Edred M. Corner. Advocated in the following classes of cases cutting down on the fractured bones and fastening the ends directly together by silver wire, silk, plates, screws, etc.; (1) fractures of the shafts of bones, particularly if they are surrounded by thick muscles as the femur; (2) in the neighborhood of joints such as the knee; (3) when one or both of the fragments are too small or too thickly covered by tissues for the splints to grasp them, such as fractures of the neck, of the humerus or femur.

*Studies upon the Etiology of Appendicitis,* by Dr. Richard Kretz, of Prague, who advances the theory that appendicitis begins as a metastatic disease of the adenoid tissue, and that the lymphatic apparatus of the throat and nose is to be regardeed as the most frequent primary localization and portal of entry of the infection.

H. D. C.

*A Manual of Diseases of the Nose and Throat.* By CORNELIUS G. COAKLEY, M. D. Clinical Professor of Laryngology in the University and Bellevue Hospital Medical College, New York. New (4th) edition, 12mo., 604 pages, with 126 engravings and 7 colored plates. Cloth, $2.75 *net.* Lea & Febiger, Publishers, Philadelphia and New York, 1908.

This work on the diseases of the nose and throat, by one of our leading authorities, should be in the library of every specialist.

The book is compact, but at the same time every subject is thoroughly covered. The author has devoted special attention to the more practical sections of the book, those on diagnosis and treatment. In dealing with the latter subject the author has selected from among the great number of medicinal and operative measures those which in his judgment are the best, and full details are given for those who have not had the advantage of personal clinical instruction.

This feature of the book makes it of value also to the general practitioner. A special chapter devoted to therapeutics has been added in this edition.

The chapter devoted to the diseases of the accessory nasal sinuses is of particular value, and must be considered authoritative, as the author has had perhaps more experience in treating diseased conditions of the sinuses than any yother specialist in the United States.

The author has also perfected transillumination of the accessory sinuses and has devised lamps for the frontal and maxillary sinuses.

C. F. T.

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*Surgical Diseases of Children.* A Modern Treatise on Pediatric Surgery by SAMUEL W. KERLEY, M. D. Professor of Diseases of Children, Cleveland College of Physicians and Surgeons, Medical Department, Ohio Wesleyan University; Surgeon-in-Chief, Holy Cross Home for Crippled Children; Pediatrist, St. Luke's Hospital and City Hospital; Pediatrist and Orthopedist, St. Clair Hospital; Late Major and Brigade Surgeon, U. S. A.; President of the Section on Children, American Medical Association, 1901; President Association American Teachers of the Diseases of Children, 1908; Member Association Military Surgeons of the United States. Illustrated. E. B. Treat & Co., New York, 1909.

The present volume opens with an historical preface of several pages in which the author calls attention to the lack of discussion of surgical treatment in former works on children's diseases and also to the slower development of surgical pediatrics as distinct from medical pediatrics. The author would have the surgery of children considered as much a specialty as medical pediatrics.

The title of the first chapter is "Examination, Case taking and General Subjects," and treats of examination and case taking; preparation for and management at the operation; anaesthetics; asepsis and antisepsis, bandaging, dressings and the applications of splints; hemorrhage and its

control; shock; post-operative treatment, lavage, gavage and rectal feeding, anatomy and development.

The second chapter is devoted to the "General Surgical Pathology of the Developing Period, and in the remaining twenty-four chapters the various surgical diseases of children are discussed. Orthopedic surgery is naturally included in a work of this character but no special consideration has been given to it.

The volume contains 765 pages, with 293 illustrations, the majority of which are original.

J. MC W. B.

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## PHYSIOLOGICAL CHEMISTRY

### Edited by Holmes C. Jackson, Ph. D.

*Concerning a New Function of the Pancreas and its Relation to Diabetes Mellitus.* (*Ueber eine neue Funktion des Pankreas und ihre Beziehung zum Diabetes mellitus.*)

O. Loewi. *Archiv für experimentelle Pathologie und Pharmacologie* 1908, 59, 83.

Diabetes which results from pancreatic disturbance of function is brought about by the organs having lost their power to combine with glycogen formed from dextrose. Two explanations for this are possible: First, In an animal without a pancreas, the stimulus which normally leads to a transformation of glycogen into dextrose is augmented. This stimulus is carried by sympathetic nerves, and may originate centrally as in the *piqûre* experiment of Bernard or peripherally as in adrenalin poisoning.

Second, After pancreas extirpation, the normal stimulus leading to glycogen transformation is unchanged, but the regulative inhibition is weakened or absent. According to this view the pancreas becomes necessary to carry on this regulating inhibition of stimulation.

In order to test the latter assumption some means must be found for proving the power of the animal to inhibit stimulation. For this purpose the adrenalin pupil reaction was employed. Stimulation of the sympathetic fibres of the neck causes a contraction of the dilator pupillæ with consequent mydriasis. From the superior cervical ganglion, inhibitory impulses pass which regulate the amount of sympathetic stimulation. This is proven by the fact that stimulations which are without effect on the normal eye, act strongly if the ganglion is removed. Adrenalin causes a stimulation of this type. When injected intravenously it acts upon the ends of the sympathetic nerve fibres and causes mydriasis. Instillation into the conjunctival sac is without effect, unless the superior cervical ganglion is removed and hence the inhibitory stimulation.

By experiments the author showed that dogs and cats never showed mydriasis after instillation of 0.1 per cent. adrenalin solution. After pancreatic extirpation, however, adrenalin instillation showed a pupil dilation twenty-four to sixty-five hours after the operation. In from

twenty to sixty minutes the pupil increased from three to four times its normal size. The adrenalin pupil reaction of the pancreas-free dogs is not so pronounced, however, as that following ganglion removal. In an attempt to prove whether the extirpation of the pancreas caused this result on account of the removal of the internal or external secretion, the pancreatic duct was brought out and sewed into the abdominal wall making a pancreatic fistula. In this condition no mydriasis occurred with adrenalin instillation until the organ was excised. Evidently then the internal secretion of the pancreas causes the observed result. Experimental evidence was also adduced to show that the diabetes and appearance of mydriasis following pancreas extirpation are not the expression of a single function. Adrenalin instillation was tested upon forty-eight patients in the medical clinics covering nephritis, carcinoma, tuberculosis, anemia, icterus, pneumonia, tabes, rheumatism. Only one showed a very slight mydriasis of one millimeter. One out of three cases of Basedow's disease was positive. In ten out of eighteen diabetes a positive pupil reaction was present and in none of these was there any evidence of occulomotor paresis. Diagnostically, therefore, a positive result of the adrenalin mydriasis, if not to be ascribed to a heightened irritability of the sympathetic system as in hyperthyreodosis or in Basedow's disease is characteristic of a pancreatic lesion. The absence of the reaction cannot exclude, however, the pancreatic origin of the diabetes.

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*The Action of Tobacco Smoke, with Special Reference to Arterial Pressure and Degeneration.*

W. Emerson Lee. *Quarterly Journal of Experimental Physiology, Vol. I, No. 4. November,* 1908.

The writer's investigations were conducted with a view of determining the action of tobacco smoke apart from its various constituents, and whether or not smoking may cause arterial degeneration. Several series of experiments were carried out, but the details of these will not be given here. The writer determined the composition of tobacco smoke to be as follows from 100 grams of tobacco: Nicotine, 1.165 grams (this represented fifty per cent. of the nicotine before combustion); pyridine bases, 0.146 grams; chiefly pyridine and collidine; hydrocyanic acid, 0.08 grams; ammonia, 0.36 grams; carbon monoxide, 410 cubic centimeters. These amounts vary with many factors; the length of tube through which the smoke passes, by allowing the deposition of the solid matter and the condensation of the vapour, the quality of the tobacco, and whether or not the latter is "treated" or "untreated." The tobacco used in these experiments was of two varieties, untreated Virginia leaf, prepared for smoking in cigarette form, and a very strong variety of Manilla cigar.

The writer found that although the Virginia tobacco contained nearly twice the amount of nicotine, or pressor substance, as the Manilla leaf, as judged by the effect of similar decoctions of the two varieties on blood pressure, the smoke from the Manilla tobacco contained just twice the

amount that the smoke from the Virginia tobacco did, judged in the same manner. This circumstance he explains as follows: "During the slow combustion of a cigar, as in ordinary smoking, immediately behind the point of combustion is an area in which the water and other volatile substances in the tobacco condense; during the act of smoking the greater portion of the nicotine at the seat of combustion is destroyed (fifty per cent.), and the nicotine which finds its way into the mouth of the smoker is probably derived from the hot gases passing through the moist area and volatilising certain of the more volatile principles of the tobacco, of which nicotine certainly is one. So that the smaller the moist area behind the point of combustion, the less likely is the smoke to contain toxic volatile bodies. It will be immediately suggested that a thin cigar or cigarette will yield fewer of these products than a thick cigar, for the thin cigar or cigarette obviously permits a relatively greater evaporation to take place. Moreover, if a thick cigar be unrolled and made up into a thinner body, the percentage of nicotine destroyed during combustion is increased. The experience of many smokers also agrees with this hypothesis, for there are those who will always avoid a thick cigar because, whatever be the strength of the leaf from which it is made, unpleasant symptoms are invariably experienced."

Experiments carried out with a view of determining the relative effects upon smooth muscle of the three alkaloids in tobacco smoke showed that nicotine and collidine act in opposite directions; the former caused the muscle to increase in tone, the latter inhibited movements and caused it to relax; pyridine in the small doses used was almost without action. Almost identical effects were produced upon the frog's heart; an additional effect of nicotine being to slightly quicken the beat, at least at first, while collidine on the other hand produced some slowing. Similar effects upon the isolated mammal's heart were noted. Nicotine immediately raised both the strength and the rate of the heart beats and gradually raised the tone of the whole heart. The effect of smoke solution on the mammal's heart was to slightly accelerate the heart rate, with some increase in strength, after a preliminary inhibition, but the tone was not raised. This difference is probably due to the antagonistic action of the pyridine bases to nicotine.

Small doses of these drugs when injected directly into the circulation of rabbits excited the spinal cord and in larger doses produced convulsions.

Pyridine produced practically no effect on the circulation when introduced as above. Collidine caused considerable dilatation of the blood vessels and a corresponding fall in blood pressure, which is partly due to cardiac depression, while nicotine produced a marked fall in blood pressure preceded by a considerable rise. The relative toxicity of these drugs was determined to be in the ratio of pyridine:collidine:nicotine = 1:2.4:6. These figures being the same both for the effects of the drugs on the isolated tissues and on the organism as a whole.

A series of experiments were conducted upon men whose habit varied from that of the novice to that of the seasoned smoker. They may be divided into three classes: the first including those in which the smoker

was a novice; the second, the group of moderate smokers; and the third, that containing the "excessive smokers."

In the case of the novice there was always an initial rise of blood pressure very shortly after the inhalation was started, which lasted half an hour or perhaps less. The height to which the blood pressure rose varied, but was usually from ten to twenty millimeters Hg. This effect was associated with some quickening of the pulse. At first the smoker had no unpleasant sensations, but rather a feeling of well-being and exhilaration. As the smoking continued, however, a sudden change occurred in the blood pressure, which began to fall rapidly, in one case as much as fifty millimeters, Hg. When the smoker was less affected by the inhalation the fall, though still rapid in onset, did not so closely resemble a crisis. This fall in blood pressure was associated with all the symptoms of shock or collapse; the face became pale, the skin covered with a clammy sweat, there was general muscular weakness, faintness, shallow respirations, and a slow and feeble pulse; sometimes nausea and vomiting were present, and sometimes colicky pains suggesting increased peristalsis.

These experiments strongly suggested in the mind of the writer that a fall in blood pressure is the essential factor in the production of shock, for all the symptoms of such are those which are seen in a sudden fall of blood pressure.

In tobacco smoke there is only one substance (nicotine) which has the power to raise blood pressure, but there are several substances which have the power to lower it. During the inhalation of tobacco smoke, the nicotine overshadows in its action that of the other constituents; it stimulates the nerve cells, and for a time exercises unchallenged its vaso-constrictor influence, with the accompanying rise in pressure. But a stage is reached in smoking in which the stimulation of the nerve cells by the nicotine gives place under the same influence to their depression, with resulting vaso-dilation and consequent fall in pressure. This condition is then exaggerated by the other constituents of the smoke, such as the pyridine bases, which have all along been tending to lower the pressure.

The second group was composed of moderate smokers, and probably includes the majority of those who smoke regularly. In these the blood-pressure rose slowly, unlike the first group in which it rose rapidly; the pressure rose usually about ten millimeters, Hg., and the tendency was for it to remain at this higher level throughout the period of smoking. After the smoking ceased the blood-pressure fell gradually to the normal, but showed no tendency to fall below that level. The rise in pressure was usually accompanied by some increase in the pulse rate. These effects were only the effects of moderate smoking on the moderate smoker. If such a one smoked to excess, he would then assume the position of a novice and the effect upon him would be the same as upon the novice when he smokes in moderation.

The third group, of excessive smokers, was merely an exaggeration of the second group. A slight rise in blood-pressure occurred, merely of

two to four millimeters, Hg., which was maintained during the act of smoking, and then gradually fell to normal without at any time any change in pulse rate.

The effect of smoking on animals was very analogous to that observed in man. In the cat the blood-pressure rose twenty to thirty millimeters Hg., during the first five minutes of smoking, and then began to fall despite the fact that the smoking continued. Occasionally, when the pressure began to fall, the animal showed convulsive movements. The ultimate effect was a considerable fall in pressure. The total output of blood from the heart was somewhat increased though the systolic contractions were not as complete as normally.

Remote effects of smoking in animals. In these experiments rabbits were used. They were subjected to the action of tobacco smoke for a short period every other day for some three months. At the end of this time they were killed, and the aortas examined. They showed a moderate degree of arteriosclerosis, which the writer considers as due to the action of the tobacco smoke.

The writer's conclusions from this work are as follows:

1. Nicotine is the most important poison in tobacco smoke.

2. Pyridine bases, in the quantities present in tobacco smoke, are not injurious to the smoker.

3. Smoking raises the blood-pressure by vaso-constriction, accelerates the heart and respiration, and increases intestinal movements. In excess, cerebral depression may occur, and, with the coexisting depression of the vasomotor center, may lower the blood pressure to such an extent that collapse may be induced.

4. The amount of nicotine inhaled during smoking depends not so much upon the tobacco smoked, as upon the form in which it is smoked. The greater the condensation area between the point of combustion and the entrance into the mouth, the more nicotine will be inhaled.

5. Arterial disease may result from prolonged tobacco smoking.

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*Experimental Researches upon the Effects of Certain Medicaments upon the Secretion of Bile. (Experimentelle Untersuchungen über die Wirkungeiniger Medikamente auf die Gallensekretion.)*

A. P. Winogradow. *Archiv für Anatomie und Physiologie.* 1908. 313.

These experiments were carried out upon dogs with permanent fistulæ in the gall-bladder. The bile was collected in twenty-four-hour periods in order to obivate any possibility of error as the result of variation in secretion during the day. Salicylic acid and its sodium salt as well as aspirin increase the quantity of bile. Not only is the volume increased but the specific gravity also. If the drug is given for several days, the increased secretion may persist for even five days, after the stoppage of administration. The various constituents of bile and ovogal, a protein

mixture of taurocholic and glycocholic acids act in about the same manner. Provenceröl and Ennatrol (sodium oleate in olive oil) are inactive; a result which stands in opposition to previous results. Carlsbad water in various modifications seem to decrease the secretion both as regards volume and content of solids.

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## PATHOLOGY AND BACTERIOLOGY

**Edited by S. B. Wolbach, M. D.**

*On a Case of Scleroderma and Addison's Disease with Remarks on the Physiology and Pathology of the Sympathetic System and the Adrenal. (Uber einer Fall von Sklerodermie und Morbus Addisonii nebst Bemerkungen über die Physiologie und Pathologie des Sympathicus und der Nebennieren.)*

L. Lichtwitz. *Deutsche Archiv für klinische Medicin, Band 94, Heft. 5 and 6, November 26, 1908.*

The case is that of a woman thirty-five years of age, cigarmaker. The patient in 1901 exhibited symptoms from which the following diagnoses were made: Anemia, vaso-motor neuroses and beginning Raynaud's disease. Three years later the diagnosis of scleroderma and Addison's disease was made based upon data which includes the following: Typical stiffening of the skin of the face, particularly of the forehead and lower jaw; thickening and hardening of the eye-lids which could not be completely closed; stiffening and thickening of the skin of the hands, arms and forearms with sclero-dactylia; extreme thickening of the skin of the chest, particularly over the sterum and epigastrium, marked vaso-motor disturbances; pigmentation generally distributed, notably in the axillae, mucous membrane of the mouth and lips, over the sternum, back, abdomen. Pulse small, soft, 140, irregular.

Blood examination—negative.

Neurological examination was in general negative, apparently not carefully made.

Patient died in January 1905, greatly emaciated, with ascites and edema.

The important autopsy findings were as follows: Chronic fibrous myocarditis, dilatation of right ventricle with acute degeneration of the myocardium; edema of the lungs; atrophy of the thyroid. Intestines, pancreas, spleen unimportant. Adrenals were practically negative. A slight hemorrhage was noted beneath the capsule of the right adrenal. Retroperitoneal connective tissue was markedly thickened and hard. Kidneys unimportant. Genitalia negative. Aorta negative. Brain, pituitary body, thoracic duct and bone marrow negative. The cords of the sympathetic nerves were negative. Semi-lunar ganglia are markedly thickened.

Microscopic examination of the skin shows atrophy of the epidermis and of the papillæ of the corium; marked pigmentation of the basal layer of the epithelium and marked pigmentation of the corium. The

connective tissue of the corium shows increase in collagen fibrils and a scarcity of cells. The vessels of the corium showed marked thickening of the walls and diminution of the lumena. The connective tissue of the corium showed large areas of hyaline degeneration. The veins of the skin show no abnormalities. The sweat glands are normal. Elastic fibres in the vessels were irregularly arranged; in the tunica externa they were increased in amount. Fat tissue was markedly atrophic. The pigment did not give the iron reaction. The findings in the heart corroborated the gross findings. Lungs unimportant. Thyroid showed a colloid struma with colloid concrements. Spleen, liver, pancreas and kidneys negative. Stomach negative. Musculature of the small intestines was somewhat atrophic. Submucosa contained pigment. Pituitary body was negative. Adrenals—in the neighborhood of both adrenals there was extreme atrophy of the fat tissue. The tissue between the fat cells showed hyaline degeneration. Capsule of adrenal is thickened and there is a general increase of connective tissue in both adrenals. Cortex is practically normal. The amount of medullary substance was perhaps decreased, otherwise negative. Veins of the adrenal showed marked increase in the so-called "venenknoten" which in the normal adrenal appear as occasional thickenings of the muscular coats. Many veins in the case presented very narrow lumen. The arteries of the adrenals showed no changes. The tissue between the adrenal and the semi-lunar ganglia consisted of dense hyaline connective tissue.

*Semi-lunar ganglia.*—There is great increase in connective tissue particularly surrounding the vessels. The ganglion cells are widely separated and many are small. The cells were markedly pigmented; many were without nuclei.

Sympathetic trunks showed no changes. Portions of the sympathetic ganglia showed changes similar to those in the semi-lunar. The lymph nodes in the neighborhood of the semi-lunar ganglia were pigmented. Only a small portion of the pigment gave the iron reaction. Sinuses were filled with phagocytic cells containing blood corpuscles. Some of the arteries showed hyaline change in the media and diminution of calibre. Veins showed irregularly thickened muscular coats similar to but not so marked as that found in the adrenals.

Lichtwitz has collected seven cases of combined scleroderma and Addison's disease. In these autopsies were done in four cases. One case showed normal adrenals and normal sympathetic system. In one case there was obliteration of the thoracic duct with general lymph statis, and connective tissue increase in the adrenals. The sympathetic system was not mentioned.

In the third case the right adrenal was normal; the left was greatly enlarged and sclerosed. In the fourth case there was colloid struma; apparent slight atrophy of the left adrenal. Sympathetic system not mentioned.

The author says that the combination of Addison's disease and scleroderma is not accidental. He emphasizes the frequency of pigmentation in scleroderma and says that in no disease with the exception of Addison's disease and pellagra is pigmentation so common, and if one regards

the combination of scleroderma with Basedow's disease one is struck by the frequency of pigmentation. Similarly there is pigmentation of those cases of Addison's disease complicated with Basedow's disease. All these cases point towards a common factor, the sympathetic system.

In a case of scleroderma reported by Harley the sympathetic trunks were involved in a chronic inflammatory process. The author next takes up the question of alteration of the vessels and concludes that this is not due to a direct adrenalin action although it is true that the active material of the adrenals by intravenous injection can produce severe vascular changes. And again Lichtwitz says that there is no evidence of an *over-production* of adrenalin in Addison's disease or in scleroderma. He does not believe that the secretions of the adrenals are discharged directly into the veins. He does not think that that is possible because it would be natural to suppose that the maximum constriction would occur in the vessels leading from the adrenal and that this would lead to an uneven distribution through the body and after a more or less theoretical discussion he comes to the conclusion that the primary action of secretion elaborated in the adrenal is upon the sympathetic system and primarily upon the chromaffine cells. This hypothesis is apparently supported by autopsy findings in cases of Addison's disease where intact adrenals are found but where there are marked changes in the chromaffine system.

He cites cases where with intact chromaffine system, marked disease of the adrenals has produced no symptoms. He suggests that the frequency of tuberculosis in Addison's disease is due simply to the increased susceptibility of the adrenal following circulatory disturbances dependent upon destruction of the chromaffine cells. In extensive processes particularly in genito-urinary tuberculosis with involvement of the adrenal there may be no symptoms of Addison's disease. That the sympathetic nerves should conduct the specific secretion of the adrenal is regarded by Lichtwitz as a plausible hypothesis because of our knowledge of the affinity of nerve substance for tetanus and diphtheria toxin and that in the case of tetanus the conduction of toxin along nerves is definitely proved. The relationship between the pigmentation of the skin and Addison's disease is not clear. Pigmentation occurs in many nerve affections, for instance, tabes, syringomyelia, neuritis and pellagra, in the last marked changes in the sympathetic system have been found. The pigment of the chromaffine system is identical with that found in the medulla of the adrenal and yields with oxidizing agents a brownish black pigment. Normally one finds iron free pigment in the adrenal, in the ganglion cells, in the skin and in the liver. If the pigment is an oxidization product of adrenal secretion then it is necessary to have the organ containing the pigment supplied with an oxidizing agent.

Ehrlich has proved that alizarin becomes oxidized by the gray matter of the nervous system, the adrenal and in the skin. The other organs exert a strong reducing action upon alizarin. In the adrenals the pigment is confined to the medullary substance. The cortex of the adrenal as Jacoby has shown contains an oxidase which probably regulates the output of the secretion of adrenalin in that an excess may be oxidized and rendered inactive. In the autolysis of adrenalin with adrenal cortex

a rapid destruction of the active substance takes place and a greenish pigment is formed. The oxidizing ferments in the skin are known and have already been considered in the question of pigment production. The melanin in the skin may be decolorized by means of reducing agents.

If then the chromaffine matter is the predecessor of pigment occurring in the diseases under consideration, one should obtain pigmentation of animals by means of intravenous injections of adrenalin and this the author has accomplished experimentally using for the purpose Albino cats. The animals were given every other day two cubic centimeters of a 1-1000 solution of adrenalin. At the end of fourteen days there was a marked pigmentation of the mucous membrane of the nose and mouth as well as the skin.

The hypothesis in brief that Lichtwitz advances is that Addison's disease and scleroderma result from diseases of the sympathetic system primarily of the chromaffine system; that the conduction of adrenalin by nerves is cut off and that it then becomes absorbed by the blood and lymphatics giving rise to vaso-motor disturbances. Some proof for this is advanced chiefly by the quotation of cases of Addison's disease in which the only findings were pressure from tumors upon the abdominal sympathetic ganglia. The pigmentation is due to the oxidization of adrenalin in the skin and organs.

If this hypothesis is correct, pigmentation should be more constant in those cases where the destruction of chromaffine matter has been slow. This Lichtwitz gives good proof of by collecting cases of rapid destruction of the adrenals and chromaffine system where no pigmentation occurred. While in the chronic cases where the destruction of chromaffine cells is slow, a most marked pigmentation occurs.

The author concludes by stating that he is well aware that much of what he advances is purely hypothetical but that it is capable of experimental proof and he hopes that his article will stimulate investigation along the lines suggested.

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*On the Comparative Pathology of Tuberculosis.*

O. Lubarsch. *Deutsche medicinische Wochenschrift, November* 5, 1908.

This communication deals with the comparative pathology of tuberculosis in a very limited sense. It concerns itself chiefly with the question of race differences between the bacilli of human and bovine tuberculosis and particularly with the question of the significance of calcification in tuberculosis. It is well known to pathological anatomists that the yellow chalky and often stone-hard lesions that are found so frequently in the lungs and in the lymph nodes and particularly in the bronchial and mesenteric glands, may be the only indication of tuberculosis. The presence of such glands in old tuberculous lesions has played an important part in the discussion as to the origin of pulmonary tuberculosis.

Cornet recently insisted that these calcified nodes are not always due to tuberculosis and that they may be due to other acid-fast bacteria, to

completely avirulent tubercle bacilli or even to bacteria of entirely different kinds.

In a review of previous work done in the determination of virulent tubercle bacilli in partially or incompletely calcified lymph nodes Lubarsch finds that very few positive results have been obtained and for that reason he has undertaken this investigation. The method of research was simply to make an emulsion of suspected lesions and to inject it into guinea pigs. The material used from human tuberculosis came from twenty-four different cases. Of these cases thirteen gave typical tuberculosis in guinea pigs. Of completely calcified lymph nodes 35⅓ per cent. gave positive results. Of those partially calcified or where the contents were chalky in nature 75 per cent. gave positive results. In bovine tuberculosis Lubarsch says that the distinction between chalky and stone-hard material cannot be made because this anatomical distinction does not exist in cattle. He was careful to use material only from those cases in which there were only a few quiescent lesions with chalky contents and no general tuberculosis. The material used came from twelve different animals—cows and oxen six to ten years old. All of these cases, with the exception of one where the inoculated guinea pig died of an acute infection, yielded positive results. Calcified glands from swine likewise gave positive results in five out of six cases. He therefore concludes that the presence of partially or completely calcified lesions in human tuberculosis, indicates a more advanced stage of healing than the similar anatomical finding does in cattle, and swine. It was also found that the guinea pigs inoculated with material from cattle and swine succumb much more rapidly to the disease than do those inoculated with the human material. There was likewise marked difference in the anatomical picture of the disease in guinea pigs produced by the human and bovine tubercle bacilli (this is in accord with the findings reported by Theobald Smith who has also demonstrated that the bacilli from swine are identical with those from cattle). The findings in the anatomical picture are essentially the reproduction of larger lesions in bovine tuberculosis which undergo more rapid caseation.

The duration of life of the guinea pigs inoculated with the material from human and bovine sources are essentially the same as when inoculated with pure culture from the same sources.

His conclusions are as follows:

In isolated totally calcified lesions from man, cattle and swine virulent tubercle bacilli are found. In man completely calcified or stone-hard lesions are less often infectious than those of a chalky consistency. Calcification of tuberculous lesions in man denotes more advanced stage of healing than does the similar anatomical picture in cattle and swine. The virulence of the bacilli in the calcified lesions of cattle is much greater for guinea pigs than those from similar lesions in man.

(The reviewer does not think that Lubarsch has given sufficient credit to work previously done in the determination of relative virulences of tubercle bacilli from man and cattle for these differences in lesions are precisely those that could have been predicted from our knowledge of human and bovine tuberculosis.)

*New Proofs for the Vascular Origin of Pulmonary Tuberculosis.*

AUFRECHT. *Deutsche Archiv für klinische Medicin, Band* 94, 3 *und* 4 *Heft.*

Aufrecht reviews briefly certain communications presented by him between the years 1900 and 1905 in which he has attempted to show by anatomical studies the vascular origin of isolated tuberculous lesions in human lungs. By careful dissection and by means of miscroscopic sections he claims to have demonstrated that isolated tuberculous lesions, in otherwise healthy lungs, always surround the smallest arteries. He believes that he has proved that the process begins in the vessel wall and extends outwards into the tissues. In several instances he has found a radial distribution of more recent lesions which is due, he believes to the process extending outwards along the arterial branches. He has obtained similar findings in rabbits by injecting tubercle bacilli into the ear veins.

He next takes up the distribution of pigments injected into the ear veins. Finely divided carbon in the form of soot and finely divided cinnabar were used. By killing the animals at varied intervals after the injection of the material he has traced out the course of the pigment from the capillaries of the lung to the lymphoid tissue and finally to the respiratory and bronchial epithelium. It is possible in this way to find pigment in desquamated epithelial cells in the alveoli and lungs after injection into the ear veins, and what is possible for pigment granules is likewise possible for tubercle bacilli. The deposition of pigment is always more abundant in the higher portions of the rabbit's lungs and in that respect is analogous to the deposit of tubercle bacilli in the apices of human lungs. He has succeeded in securing the deposit of pigment in the apices of rabbit's lungs by holding them in the vertical position for a time after injection.

From these experiments Aufrecht claims that all the anatomical and microscopic findings attributed to the deposition of foreign material following inhalation can be duplicated. He claims further that no one has ever succeeded in producing the same findings by inhalation experiments and that therefore the burden of proof rests upon those who contend for the inhalation theory of pulmonary tuberculosis.

One interesting histological fact brought out by his work is that the pigment is carried through the capillary walls and even the wall of smaller arteries by phagocytic cells. These phagocytic cells are those designated as pseudo-lymphocytes by Ehrlich. From Aufrecht's description of these cells it is highly probable that they are the same cells which American histologists believe to be of endothelial origin.

Aufrecht has not considered in this paper the possible portals of entry of tubercle bacilli, although he quotes briefly experimental work done by others which have shown the possibility of entrance into the blood stream by way of the tonsils and cervical lymph nodes and by way of the thoracic duct via the intestines.

*Experimental Contribution to the Origin of Nephritic Oedema. (Experimentelle Beiträge zur Entstehung der nephritischen Oedem.)*

J. Bence. *Zeitschrift für klinische Medicin,* 1909, 67, 69.

These experiments were conducted with the view to aid in deciding the question as to whether nephritic edema is due to a primary water retention as the result of renal incompetency in water excretion or whether the water retention is secondary to an inability on the part of the kidney to eliminate salts. As a condition of the latter view, the endothelium coats of the capillaries must become more permeable for the water. The experiments were carried out upon rabbits and may be divided as follows: 1. Animals without water. 2. Animals without water with double nephrectomy. 3. Animals given water and with double nephrectomy. 4. Animals without water and with uranium poisoning. 5. Animals poisoned with uranium and given water. 6. Animals with double nephrectomy given no water but poisoning with uranium. 7. Animals the same as 6 but given a definite amount of water.

In thirsting animals, the weight diminishes less in the case where both kidneys have been removed than in the normal animal. This difference is more than can be accounted for by the loss of urine, and is to be ascribed to a water retention. If water is administered to normal animals in amounts to compensate for loss of weight, this water is rapidly lost through the insensible perspiration. This does not occur after double nephrectomy. Hence the retention is of water in this case lost by insensible perspiration. This retained water is found at first in the blood and results in a hydremic plethora. The retention reaches its maximum just before death. The administration of water increases the hydremic plethora and edema results. In some cases, however, the edema occurred in the thirsting animals. This hydremia is not the sole condition upon which the edema depends since in some cases, the concentration of the serum was normal or even higher and yet an edema appeared. Since the blood dilution occurs even in thirsting animals there must take place a passage of water from tissues to blood; the exchange is the reverse of that which is presumed to occur as the result of experiments formed to prove the Cohnheim-Lichtheim-Senator theory of edema formation. The direction of water exchange from blood to tissue according to the latter theory must lead to a decrease in the volume of blood during the formation of the edema. The experiments cited here indicates that the edema appeared while the blood volume was continually increasing. This statement is also true in the experiments with uranium nephritis. The conclusion reached by this author is that the formation of the edema is the result of altered distribution of water throughout the body. In general water passes from tissues to the blood but in certain localities, a predilection for water accumulation occurs, and edema results.

## MATERIA MEDICA AND THERAPEUTICS

### Edited by Spencer L. Dawes, M. D.

*The Treatment of Chilblains.*

F. Gardiner. *The Practitioner, February,* 1908.

No case of chilblains need go beyond the erythematous stage, recurrences can be aborted, and many cases can be entirely cured.

It must be remembered that the lesions occur at the extremities of the circulation; and that cold, and more especially rapid variations from heat to cold, start the lesions. These two factors interact, the skin being more readily affected when the blood supply is feeble. If the blood be diseased, as in anemia, if there be disease of the vessel walls or venous stasis; or if the heart be diseased, and we have as sequelae, a lowered vitality and a consequent deficient nourishment of the tissues, local measures will produce but temporary benefit.

The most important point is for the physician to ascertain what general disease is present, and treat it *secundum artem.* Cod-liver oil and iron almost invariably head the text-book list, yet we frequently find patients with a liberal supply of fat, taking the first and those with a hemoglobin percentage over eighty taking Blaud's Pill under medical direction, and of course receiving no benefit. It is surprising to know the number of mild cases of Raynaud's disease, which are overlooked, the history of blanching fingers, which promptly improve with the exhibition of nitrites, being readily obtainable. Many cases are promptly relieved by cardiac tonics. A certain type of case with urticaria or dermographism are frequently relieved by the calcium salts. The patient should be instructed to avoid chills, to wash in tepid water, and warned against warming the extremities at a fire. Foot and hand wear should be warm, but not tight, and neither rough nor irritating. Massage, excepting in the erythematous stage is helpful, especially as a prophylactic. A ten to twenty per cent. ointment of icthyol in lanoline, spread thickly on linen, and worn at night, will often dispel an attack after a few applications. Adrenalin and chloretone ointments are also good and not as disagreeable in odor, but not as useful. Formalin is a very powerful drug and needs care in its use. If there be abrasions there is much burning and smarting. With coarse skins the remedy may be used pure, but with sensitive skins, an ointment, ten to fifty per cent. is employed. To avoid the astringent action of the drug going too far, omit it after a few days and apply vaseline or lanoline. Formalin is quicker, harsher and more lasting, while icthyol is better suited for delicate skins. Icthyol may be used first, and when the cracks are healed, formalin employed. The author also speaks of the use of iodine, collodion, nitrate of silver, and electrical methods, but without much enthusiasm.

In the ulcerative cases he employs the following:

| | | |
|---|---|---|
| ℞ | Hydrargyri ammoniati | 0.300 Gm. |
| | Icthyoli | 0.600 Cc. |
| | Pulveris amyli | 7.800 Gm. |
| | Pulveris zinci oxidi | 7.800 Gm. |
| | Petrolatum | 16.000 Gm. |

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## Original Communications

# A REPORT OF ONE HUNDRED CASES OF HERNIOTOMY IN CHILDREN WITH END RESULTS.

*Read before the Medical Society of the County of Montgomery, at Amsterdam, N. Y., March 24, 1909.*

By H. C. DEAVER, M. D.,
*Philadelphia, Pa.*

Inguinal hernia is a condition so frequently encountered in young children, and one the essential cure of which is so essential to the future health, vigor, and welfare of the individual, that I have selected it for my topic to-night, together with a series of operative cases.

About thirty-three and one-third per cent. of all hernias occur before the age of fourteen. This relatively large frequency is explained by the congenital preformation of the sac in most hernias coupled with the rough-and-tumble activities of childhood, and further by the fact that in early childhood the inguinal canal passes more directly and less obliquely through the abdominal wall than in the adult. The well known preponderance of hernia in the male sex is due to the more strenuous exertions of this sex. About twenty-five per cent. of hernial patients quote a family history of this disease. My series shows several examples of hernias occurring in brothers who were operated upon in succession. Among the exciting causes of hernia in children may be mentioned, whooping cough, bronchitis, intestinal constipation from injudicious feeding, continual injury, falls from a height, or any factor that tends suddenly to increase the intra-abdominal pressure.

In this way the intestine or omentum is made to seek and enter the congenitally preformed peritoneal sac, and the extent to which the contents protrude determines whether the hernia be

complete or incomplete. In acute hernia the extent of this protrusion corresponds to the extent of the preformed sac, but in chronic hernia the preformed sac, if not complete, may be made so by the gradual stretching of the sac by the sac contents.

By bearing in mind this mechanism, it is readily understood why indirect inguinal hernia in children in the great majority of cases appears suddenly. In fact, it is often discovered by the mother for the first time when bathing the child. In the acquired variety on the other hand, there being no preformed sac, the hernia appears gradually, for it must make for itself a sac only by patient and persistent endeavor. This is a point in the differential diagnosis between congenital and acquired hernia that must not be overlooked. While the common form of hernia in children is the indirect inguinal, and while this is practically always congenital, the rare form is the direct inguinal, which is always acquired. The explanation of this difference is sufficiently simple, since in the indirect variety the hernia has but to take the path offered by the preceding descent of the testis, or round ligament, while the direct form has no such forerunner, but must hew its way through the triangle of Hesselbach. It must be granted, however, that a pre-disposing cause of direct hernia may be found in a congenital weakness or deficiency in the fibres of the conjoined tendon or in those of the transversalis fascia, so that in this way occurs the very small percentage of direct inguinal hernias in childhood. Furthermore, direct hernias occur most typically when the lower abdominal wall is weak and relaxed, as in old age, after prolonged distension, or after emaciation following obesity.

A rapid survey of the anatomy of the inguinal canal may not be amiss. In the absence of hernia the inguinal canal represents solely the space occupied by the spermatic cord so that, strictly speaking, no canal exists so long as the cord remains in place. The internal ring is an artificial opening in the transversalis fascia made with the knife,—therefore, merely a potential ring—and is located midway between the anterior superior spine of the ilium and the symphysis of the pubis, and about half an inch above Poupart's ligament, just outside the deep epigastric vessels. From this point the inguinal canal descends for an inch and a half obliquely downwards and inwards. Its anterior wall is formed throughout its length by the aponeurosis of the external oblique and in the outer third by the muscular

fibres of the internal oblique. Its posterior wall is formed from without inwards by the transversalis fascia, the conjoined tendon, and the triangular fascia, when the latter is well developed. Its floor, determined when a patient stands upright, is formed by the recurved shelf of Poupart's ligament. Its roof is closed by the arching fibres of the internal oblique. The external ring is a cleft in the aponeurosis of the external oblique muscle, placed immediately above and to the outer side of the pubic spine. It is an inch in length, and half an inch in width. Its two pillars are bound together by the intercolumnar fibres, from which is prolonged onto the spermatic cord the intercolumnar fascia. The spermatic cord is crossed from above downwards by the ileo-inguinal nerve, which is exposed by opening up the anterior wall of the canal. The coverings of an indirect hernia from within outwards would be: sac of peritoneum, sub-peritoneal areolar tissue, infundibuliform fascia from the transversalis fascia, cremasteric fascia from the internal oblique muscle, and, if the hernia be complete, intercolumnar fascia from the intercolumnar fibres (external oblique aponeurosis), sub-cutaneous tissue and skin. Each covering is more likely to be identified in hernias of children than in those of adults, because the tissues are fresher, and seldom have time to atrophy, stretch and adhere. The sac contents are usually a terminal loop of ileum, because of the length of the mesentery near the ileo-cecal junction. I have seen several examples of hernia of the cecum with the appendix, and of the bladder, in which case the peritoneal sac is apt to be incomplete, especially when the hernia is of the "sliding" variety. The contents of the sac may be omentum, and sometimes both the latter and gut are present. In most cases no contents will be found at operation, they having been reduced previously, so that in the majority of cases it is impossible to say definitely what the contents were. The vas deferens is situated posteriorly to the spermatic cord, but may be readily identified by its cord-like feel, due to the excessive development of its muscular coat.

The symptoms caused by indirect hernia in children are obscure. Discomfort and uneasiness about the hernial aperture is frequently complained of, but frank pain is seldom present in the simple cases. Often, as stated above, the hernia is discovered for the first time by the mother while bathing the child. A complete scrotal hernia often causes indigestion by dragging on

the mesentery. When the hernia is strangulated, signs of intestinal obstruction, and later, of acute peritonitis supervenes.

The differential diagnosis of indirect inguinal hernia in children ordinarily presents no difficulties. Inguinal adenitis, so common at this age, is distinguished by its irreducibility, its tenderness, its associated periadenitis, and the probably co-existing femoral adenitis, with the presence of a causative cut or abrasion in the area drained by these lymph-nodes. Abscess from Pott's disease in the lumbar vertebrae, which is a not infrequent disease of childhood, is differentiated by the history and associated signs, by the pointing of the abscess below and to the outer side of the external ring, by the presence of fluctuation, and by the impossibility of reducing the fluid into the abdominal *cavity*. Congenital hydrocele transmits light, is fluctuating and non-reducible. Hydrocele of the cord, if pushed into the abdominal cavity, immediately recurs. The differential diagnosis between the commoner indirect form of inguinal hernia and the rarer direct is not of much practical importance. Direct hernia is a disease of later life. It is usually globular because of its shorter neck, smaller, and seldom becomes scrotal. It is reducible directly backwards, instead of obliquely, and is situated between the deep epigastric vessels and the lateral border of the rectus muscle.

The prognosis of inguinal hernia, like that of other varieties, is uniformly good. Small hernias which give rise to insignificant symptoms usually heal spontaneously when a well-fitted truss is applied. When operation is indicated, the little patients usually bear the procedure well. Recovery from operation is almost an invariable rule, the mortality from this operation being about one-fourth of one per cent. Recurrence of the hernia is also exceptional, the young, plastic tissues lending themselves readily to healing, and the child is usually carefully watched by its mother until the wound is strongly and securely healed. Recurrence occurs in about one-half of one per cent. of operative cases. So, too, strangulated hernia usually comes to the surgeon earlier in the case of children than in that of adults, because of the alertness and solicitude of the mother for her offspring's welfare.

The treatment of inguinal hernia should be prophylactic as well as curative. The diet should be carefully supervised. The milk-mixture or food should be so prepared that it is well assimi-

lated and produces neither intestinal tympanites nor constipation. Any source of irritation from which the child continually cries should be removed. Prolapse of the rectum is an indication of increased abdominal tension from some cause, and while correcting it the physician should test from time to time the various hernial apertures. Whooping cough and bronchitis should be cured as speedily as possible, and as long as the child coughs or cries it should wear a firmly fitting abdominal binder.

The curative treatment depends upon the size, extent, and nature of the hernia. If a hernia be small and produces few symptoms, and if the testicles are in the scrotum, a well-fitting truss should be applied. In rare cases of hernia complicated by irreducible hydrocele or adherent omentum, truss treatment is useless. The pressure of the truss-pad usually obliterates the cavity of the sac by causing adhesions to form between its two walls. If the parents can afford it, it is well to order two trusses to insure longer lasting qualities and greater cleanliness. The trusses must be made larger as the child grows older, if the hernia has not been cured in the meantime. If the hernia has not been cured by the truss at the end of one year, operation should be performed. The mother should receive instructions to keep the truss on the child at night as well as during the day, the more so if the child is restless in its sleep. The delicate skin must be kept scrupulously clean and frequently powdered. In order to enhance the value of the truss, it is important to remove any cause of increased abdominal tension so long as it is being worn. It is not sufficient to apply a truss and neglect curing a chronic cough, for example.

As regards the operative treatment of hernia, preliminary preparation of the child is most important. The causative factor of the increased abdominal tension must be removed, lest the wound be handicapped in the process of post-operative healing. Of the various methods employed, I prefer that of Bassini. In very young children and in those with undescended testicle, I do not arbitrarily transplant the spermatic cord. After incising through the skin, I first pick up and isolate the ilio-inguinal nerve, to diminish the chance of post-operative pain. Then I isolate in like manner the vas deferens, as well as its accompanying vessels; this being the most important step if the function of the testicle would be preserved. The sac is usually readily found by revolving the spermatic cord half way round its

axis so that its posterior surface looks uppermost. As stated before, the three immediate coverings of the sac, namely, the infundibuliform, cremasteric, and, if complete, the intercolumnar fascias may be so blended together as to be indistinguishable, but, in any event, the sac should be cleared of all tissue by means of gauze dissection. The sac must be opened in all cases so that the contents may be inspected and their condition determined. This detail will prevent reduction in mass and any persistence of symptoms after reduction. The sac is tied off at its junction with the anterior parietal peritoneum and removed, after having been cleared of its contents. The stump may or may not be anchored in the vicinity of the internal hernial aperture. Reconstruction of the inguinal canal is now in order, but it is most important first to secure perfect hemostasis to prevent the formation of hematomata, which not only interferes with secure healing, but also predisposes to infection of the wound. As stated before, in very young children and in those with undescended testicle, I do not usually transplant the spermatic cord. However, in most cases, the spermatic cord is to be held aside, and the various layers that are to be sutured together are well isolated. Above the arching fibres of the internal oblique are sutured to the shelving margin of Poupart's ligament with through and through sutures. These sutures should be passed through the shelving margin from within outwards so as to avoid injury to the underlying external iliac vessels. When tying, they must not be drawn too tight, since the amount of tension required is only that necessary to bring the edges in apposition. Below the conjoined tendon is sutured in like manner to the inner portion of the shelving margin of Poupart's ligament. If the arching fibres of the internal oblique muscle or the conjoined tendon are congenitally weak or poorly developed, the sheath of the rectus must be opened into and the lower fibres of the rectus sutured to the shelving margin of Poupart's ligament. All hemorrhage being controlled, the cut margins of the aponeurosis of the external oblique muscle are overlapped by a continuous suture. The continuity of the pillars of the external abdominal ring is usually not divided during the entering incision, if avoidable, the strength imparted to these pillars by the lower strands of the intercolumnar fibres being in this way preserved. The skin edges are apposed by interrupted or continuous sutures. A sterile dressing is applied and covered

by a spica bandage of the groin. With careful nursing during convalescence, the patient is permitted to be up and about at the end of a fortnight, and is discharged with instructions to subject the scar to no strain until the expiration of at least a year after operation.

The suture material to be used in the operation should be twenty-one day chromocized catgut. If non-absorbable sutures be used there is danger of sinus formation and of relapse.

In cases of strangulated hernia, too strenuous efforts at taxis may prove detrimental to the welfare of the child. If the strangulation be of *short* duration, the hernia may reduce itself during transportation to the hospital from the slight joltings incident thereto, or may be reduced by the Trendelenburg position, by a hot bath, or by relaxation obtained by anesthesia. If the strangulation be not thus relieved, herniotomy is indicated. The source of strangulation will usually be found to be a tight external ring, and this may be relieved by several nicks in an upward direction, using a blunt pointed bistoury. If an epiplocele be found, the constricted or gangrenous omentum must be removed. If the intestine be constricted, resection is unnecessary if the circulation of the gut is restored after the application of cloths wrung out of hot sterile water. In the case of gangrene, resection of the bowel and lateral anastamosis is indicated provided there is no perforation with extensive cellulitis. In this instance drainage of the intestine and wound is all that is required. After the infection has drained away, the fistula may be closed and a radical cure of the hernia performed.

To ascertain the end results in operations for inguinal hernia performed at the Children's Hospital of the Mary J. Drexel Home, a circular letter was sent to the parents of one hundred children. There was no operative mortality in this series. Replies received from sixty-three showed no instance of recurrence. These operations were performed from one to sixteen years ago.

3....No recurrence upward of fourteen years.
1....No recurrence from twelve to fourteen years.
2....No recurrence from ten to twelve years.
4....No recurrence from eight to ten years.
14....No recurrence from six to eight years.
5....No recurrence from five to six years.
4....No recurrence from four to five years.

5....No recurrence from three to four years.
10....No recurrence from two to three years.
15....No recurrence for one year.

All these children were below the age of fourteen years. The youngest patient was a baby twenty-eight days old, who was operated upon for strangulated hernia. I have recently had a similar case in a baby twenty-one days old. In this series there were two instances in which brothers of nearly equal ages were operated upon in succession. In this series there were three scrotal hernias of large size in children under five months of age.

## Conclusions

Based on the above hundred cases, I draw the following conclusions:

1. If the hernia be small and the truss easily kept in place, it is feasible to persevere in the use of this apparatus. If there is no cure after a year's trial, operation should be performed.

The truss should only be advised where the mother is intelligent enough to carry out the instructions as to its proper use. Is it advisable to order trusses among the poor where the care of the children and their environments are not so favorable as among the intelligent classes? For too often in such cases the wearing of the truss offers a false sense of security against accidents, such as strangulation, and the hope that the truss will cure these hernias often proves futile. The expense of the truss must also be considered.

2. Since the operation has practically no mortality, and since the results are so good, radical operation is justifiable, and this wholly irrespective of age.

3. In large scrotal hernias I would not advise in any class of patients the use of the truss because the operation is not serious and the results are perfect and permanent.

4. As to the operation itself, the most important point in the closure of the canal is the separation of the layers so as to get firm union between them in their new relations and, at the same time, to prevent any tension on the deep sutures. The skin incision should not be prolonged too far outwards towards the scrotum; not more than half an inch below the external abdominal ring. The sac should be *completely removed* and, if cut properly, its stump disappears from sight by the elasticity

of the peritoneum. The only true indication that the limit of the sac has been reached is the end of the thickening of the same.

## DISCUSSION

Dr. Beilby, Albany:

My method of operating upon these cases is one which I have followed since observing the work of Prof. Halsted's Clinic. I was so well impressed by this method and the results which are obtained at the Johns Hopkins Hospital that for the last three or four years I have followed the method in vogue there which, as you are aware, is the imbrication method without transplantation of the cord. I am well aware that most men will disagree with me as to the advisability of the use of silk. This is the only operation in which I use silk but I believe that here it has some decided advantages.

I was impressed by what Dr. Macdonald said in regard to accidents occurring in this simple operation. Only a year or so ago I had an accident similar to the one he mentioned. It was in the case of a man aged sixty years. Death occurred suddenly on the twelfth day, his first day out of bed, from pulmonary embolism. It seems to me a serious matter to put an old patient in bed even for this length of time and to so completely change his routine of life. By closing the wound with silk I believe the patient could be allowed to sit up on the following day or perhaps the same day as the operation without any resulting harm to the wound. Frequently the reason that we have unfortunate results with silk is from the fact that too heavy sutures are used and perhaps drawn too tightly thus constricting the tissues and interfering with their proper blood supply. It is my custom to use a very fine silk which is boiled previous to the operation and I must say that with this kind of silk I have never experienced any trouble. I allow my patients to get out of bed very early. I do not transplant the cord.

If one is averse to using any great amount of silk in a hernia wound, even two or three sutures used in the proper place will be found of great advantage. I feel positive that the chances of infection or of subsequent irritation from the silk sutures are very slight if they are properly employed, and is more than offset by the lessened chance of a recurrence of the hernia.

Dr. Stanton, Schenectady:

I was born and raised on the idea that hernias in infants would probably get well under the truss, and I remember that as a student I was much impressed with the statistics that seemed to show that something over ninety per cent. did get well. As a matter of fact, my experience has been small, but I never have seen an instance in which an infant wearing a truss, whether that truss was a yarn one or one made by an instrument maker, could wear it comfortably or the results were anything like as good as we expected. During my hospital work we used to hang the little ones up by the legs much as we treat fracture of the femur in

children and after six weeks or so the hernias were apparently well, but in the meantime I believe we kept the infants in bed for six weeks and our danger in that time of getting some intercurrent infection, and the danger of keeping them in a hospital atmosphere for so long a time was just as great as would have been the danger had we operated at once and turned them loose in a little while.

As to the technique of the operation, I must agree with Dr. MacDonald, the details are rather inessential. I always try to figure four essential steps: *first,* the asepsis. we all know the importance of this; *second,* the proper ligation of the sac; *third,* the uniting of clean broad surfaces, and *fourth* that we treat our tissues decently in the operation. I personally have never seen an infection in a hernia where I was not sure that somebody either treated the tissues roughly or else tied his stitches too tightly. I know from my experience that in the same hospital with the same suture material and using the same technique, that the fellow who treats his tissues decently comes out without infections, and the fellow who ties his sutures tightly and handles his tissues roughly, does get infection.

In our own work we do not transplant the cord.

Dr. Moriarta, Saratoga:

I believe there is one very important feature in Dr. Deaver's paper which those of us in general practice will appreciate, and that is that he has stated the definite time at which operative interference should be suggested in these cases. All of us who have these cases to meet are at times undecided how to advise the family concerning when the little one should be operated on. Some of us hesitate to advise the use of a truss, as has been stated it is so often unsatisfactory, and I am sure, never safe. I have yet to see one of these little people who has had a truss adjusted satisfactorily.

In the very young infants, I have had as much satisfaction in the use of the Hank truss as in any other measure. This, as you know, is made of several strands of worsted or Germantown wool. It encircles the body, so that the knot is over the internal ring, the end passing down between the thighs, and is fastened at the back at an elective point. I am sure this is a very satisfactory procedure for the first two or three months.

I must say I do not agree with Dr. Beilby in the use of silk as a buried suture. I used it some, after seeing it used as Dr. Beilby mentions at Johns Hopkins. I have had several unpleasant experiences with it and have had to cut down later and remove the silk or fish it out through the sinus. I am very positive it should never be used.

As to number four catgut, I do not think there is any necessity for ever using it, for the chromicized catgut number one has a life of twenty-one days. If for any reason it is thought there would be too much tension for such a fine suture, it is well to use a double strand.

Dr. Lempe, Albany:

*Mr. President:* Dr. Deaver, in speaking of some of the causes of inguinal hernia in children, emphasized that of intra-abdominal pressure

due to straining, forced use of the abdominal muscles. One of the most frequent causes of inguinal hernia in children, that came to me for operation, I find to be those cases which have been caused by straining due to phimosis. On the average, seven out of ten cases were due to this condition. On operating for the tight prepuce and removing the retained smegma under it around the corona, the condition was arrested and the hernia cured by the wearing of appropriate appliances. The cases cured by appliances of any kind were the exception, as it is almost impossible in my experience to have children under eight to ten years of age wear a truss with any degree of comfort or hope of a good result. The only form of hernia, in which a truss has been worn successfully, is umbilical hernia, and that not with the usual form of truss sold in commerce, but a support or pad held in place by zinc oxide adhesive plaster. I mention zinc oxide plaster, inasmuch as the ordinary adhesive plaster will cause an excoriation and blistering of the skin if worn any length of time.

As to the size of catgut, which Dr. MacDonald speaks of, we have all had rather embarrassing experiences. The larger sizes, 3 and 4, have in a good many instances been found septic. I remember two cases where the larger sized catgut was used by myself (sizes 4 and 5) where the patients after having been at work for a year and a year and a half, respectively, returned to me with a latent infection, which necessitated the opening of the old scar and the curetting and cleansing out of a large abscess in the deeper layers of the abdominal wall, caused, undoubtedly, by the infection buried therein at the time of the operation, which germs, the staphylococcus, were introduced, sine dubio, by means of the septic catgut of larger size.

There is one feature which I should like to emphasize, and which Dr. Deaver mentioned, and that is, one should be careful not to bruise, crush or injure or entangle in the ligatures fibres of the ilio-inguinal nerve. I have learned to have great respect for that nerve as I have had a rather uncomfortable experience in several cases. One case was that of an adult who came to me after operation, for at least two years, with pains over the incision, shooting down into the testicle and at times extending to the tip of the penis. After having exhausted all means at my command to relieve him he was handed over to about every genito-urinary specialist in eastern New York. This condition lasted, so far as I have been able to trace, three years. Several other cases in adults and one in a child, four years of age, gave a similar history as the result of injury to the ilio-inguinal nerve. Hence, I should like to call the attention of the gentlemen here present to the warning expressed by Dr. Deaver.

In speaking of suture material and ligatures, I have abandoned entirely the use of silk or linen thread in any form, as my experience with these, in a large number of cases, has been very unsatisfactory.

Dr. Lenz, Gloversville:

I was rather surprised at the early age at which Dr. Deaver advised operation. I never advised operation earlier than three or four years, believing that I would be unable to keep the wound from becoming in-

fected at an earlier age. I would very much like to hear the details of caring for a wound in a child under a year old.

I would also like to learn Dr. Deaver's management of a case of inguinal hernia in a child of four years, with undescended testicle.

Dr. Conant, Amsterdam:

Our field here is rather limited. We hear good reports from those who transplant the cord and from those who use the method of Ferguson and do not transplant it. Coley however claims priority in the matter of non-transplantation. A few years ago he interested us in the use of Kangaroo tendon. Some of us have had trouble with it.

Dr. Wood, Gloversville:

It so happens that last Saturday there were two young men in my office, one that about twenty years ago I operated on for a strangulated hernia. The child was then less than six weeks old. That young man grew up went to school and then to business school and is self-supporting. He has been able to make his own living, been able to get along. The other young man who was in the office has been practically a chronic invalid since birth as a result of a double inguinal hernia. As Dr. Macdonald well said, his time was worth nothing at an earlier age, and his efforts have been seriously impaired owing to the fact of these two hernias he has carried through life. I think no stronger argument can be used than the fact that the young can well afford to spare the time and can get the attention when infants that they cannot get when they reach the self-supporting age.

Dr. Faust, Schenectady:

It has been my custom, with the hernias I have had to deal with, not to transplant the cord, whether they have been hernias of infants or adults. In most of my operations, I have followed out this scheme, and so far as I am able to determine, I have never had any cause to regret it. I think the non-transplantation of the cord is a very important thing. It requires less handling of the parts and for this reason does not lower their vitality.

Dr. Traver, Albany:

You must excuse me for not entering deeply into the discussion of this paper as I did not expect to be called upon to-night. However, since you have done so I might say that the suture material seems very important to me, also the careful handling of the tissues of which Dr. Stanton has spoken. Personally I do not use silk, I use catgut or kangaroo tendon. I do not transplant the cord in small children but do in adults. I remember a boy that came to me a year or more ago, a boy eighteen months old, who had a strangulated hernia together with an undescended testicle. The testicle was just about as black as it could be and it was quite a problem in my mind what to do with the testicle. I left it in and the inflammation subsided. I have operated on quite a

number of cases of hernia in children that I have been able to examine later or hear from them and as far as I know in no case has the hernia returned.

Dr. Deaver:

Gentlemen, I want to thank you for the general discussion of this paper and to say what prompted me to write it. Most of my hernia operations have been done among the poor and we all know it is a very difficult matter to trace our cases after leaving the hospital; this is an important point in all our operative cases and we should make an effort to ascertain the end result. As to the curability following the wearing of the truss in very young children I have very little faith. We all know that it is a very difficult matter to keep a truss applied as it should be and it is also a difficult matter to impress the mother or the caretaker of the child with the importance of the truss. What prompted me to operate these cases in early childhood was the good results obtained in operating children from three to six weeks old for strangulated inguinal hernia. In this group of cases the condition was recognized early and taxis was not persisted in; a very important point. After relieving the constriction and isolating the sac and tying it off, one or two deep sutures suffice in forming the new canal. Since then I have been operating upon young children with large scrotal hernias with very good results. As to the use of suture material, I do not think we have any suture material which is perfect and my preference is for small chromacized catgut. I have used silk and have had some excellent results. still I have had some infection. When we do get infection from silk it lasts longer and sometimes we have to remove it before the infection clears up, which is not the case in catgut. I always use fine catgut because we are less liable to injure or tear the delicate fibres of the shelving margin of Poupart's ligament. I think that a thorough knowledge of the anatomy of the inguinal region is very important. A man who knows his anatomy thoroughly will recognize his structures readily and is less apt to injure them and thus impair the healing process. I have always done the Bassini operation and I may say that it has served me well, and in very young children I do not transplant the cord for it makes the operation more simple and there is less disturbance to the parts. In those cases where the testicle is undescended. if I am able to draw the testicle down and transplant it in the scrotum, I do so; if not, I remove it. As to the ilio-inguinal nerve, I am very careful to expose it freely; at the same time I pass an Allis forcep beneath it and fasten it to the upper margin of the external oblique incision and in this way I am able to hold it out of the way. In about five per cent. of the cases they complained of the pain in the scar after great exertion, so I think that some of the fibres of the ileo-inguinal nerve must have been injured at the operation. I always separate the sac well up beneath the muscles so that when it is removed the stump contracts and is lost from view.

# ON THE IMMANUEL "MOVEMENT."

*Read before the Rensselaer County Medical Society, April 12, 1909*

By A. STUART M. CHISHOLM, M. D.,

*Bennington, Vt.*

In laying before you to-night what I have to say on the Immanuel Movement, I find that the theme subtends a larger angle than the Rev. Mr. Worcester, and that to consider it properly it will be necessary to take into consideration many things which that gentleman ignores. Indeed his whole work is made up of half-truths and scraps of fact to such an extent that one's first impulse, after a careful perusal, is to treat it with the ridicule that any quasi-scientific article merits when written by one who is essentially ignorant of the fundamental conditions of the theme that he assumes to develop. But the Rev. Mr. Worcester shares with his rival, Mrs. Eddy, the factitious distinction of being taken seriously by so many people, he himself seems so earnest in his purpose to benefit humanity, and he and his fellows write so many magazine articles about their work and about each other, that ridicule might seem in many eyes the weapon of weakness. Consequently I shall say nothing even remotely sarcastic about this movement. In the parallel case of Mrs. Eddy, the pen even of Mark Twain lost its point and maundered blindly along tiresome ways.

Of course, the Rev. Mr. Worcester is not under the slightest obligation to conform to the professional custom of keeping himself and his methods and their results out of the public prints, but his offences against propriety in this respect are so gross and so habitual, that a mere enumeration of the names of the periodicals containing laudatory articles on Immanuelism would be tedious, and I personally should be ashamed to acknowledge the hours that I have spent in their perusal. I am the more willing to suppress this acknowledgment since I have found these magazine articles of less real service in the consideration of my theme than is Dr. Haig's work on Uric Acid in the serious consideration of the Etiology of Rheumatism. So much for the Rev. Mr. Worcester's fortiter in modo; let us now examine with greater care his suaviter in re.

In the gospel appointed to be read on the day of the Holy

Apostles, St. Philip and St. James, occur the words, "Verily, verily, I say unto you, He that believeth on me, the works that I do shall he do also; and greater works than these shall he do." The Rev. Mr. Worcester had read these words on the first of May, year after year, until the thought came to him one day—"There is no limitation of time upon this promise, therefore the church has suffered it to fall into disuse." The Rev. Mr. Worcester was of course guilty of an error in fact as well as in logic, for the Roman church has never for a moment relinquished its claim to the promise of Christ, but, on the contrary, has exercised it without intermission since apostolic times. However, the Rev. Mr. Worcester had got hold of an idea which it seemed worth while to exploit, and he at once proceeded to do so. The result in a concrete form he has with noteworthy intrepidity, presented to the world under the title "Religion and Medicine." He first, with the instinct of the trained logician, established a suitable foundation for his theory. He finds it easily in the works of Christ. In fact he finds it too easily or at least too copiously to suit him. He first groups Christ's miracles, or rather accepts their grouping into four classes:

1. Acts of simple healing.
2. Instances of demoniacal possession.
3. Nature miracles.
4. Acts of raising the dead to life.

The fourth class, raising the dead, daunted his imagination and he refuses to consider those miracles at all. The third class, levitation, turning water into wine and walking on the sea, were sufficiently spectacular, but seemed inconsistent with his priestly office, and were otherwise undesirable to attempt to imitate, besides presenting difficulties that seemed insurmountable. In a word, they transcended his faith. These two classes, then, he resolutely blinks. He washes his hands of them. He will have nothing whatever to do with them. That ear is totally deaf. Moreover, they do not help his preconceived theory so they are useless for his purpose. This is convenient but scarcely honest. We see here the result of the pulpit habit, of the easy virtue of pulpit utterance, of the reticences that are dictated at times by propriety, at times by ignorance, at times by policy,—embarrassing facts being now deftly concealed, now awkwardly suppressed.

On the other two classes of miracles, he is voluble enough. The facile discursiveness of the popular preacher here manifests itself. One hears echoes of the thousand sermons, on a wide variety of topics that have gone into this smelter. As you read his pages, you seem to see, behind the words, dim ghosts, with faces still smeared from their former service, raising their voices to remind you that they were once alive and thundered into the ears of a somnolent congregation. This is perhaps the reason that makes "Religion and Medicine" more interesting reading than "Science and Health," which, as Carlyle once said of a novel of Bulwer-Lytton's, "the unassisted human faculties are inadequate to read."

So the Rev. Mr. Worcester, in considering the miracles of Christ, dwells only upon the first two classes, "Acts of simple healing" and the "Expulsion of demons." These he groups, or rather huddles, together under the general head of Functional Neuroses. All of these miracles whisper softly to the Rev. Mr. Worcester, "*Hysteria.*" Because paralysis is known to be at times one of the accidents of hysteria, he concludes with unseemly haste that all of the paralytics that Christ cured were hysterics, even the paralytic of the temple who had been paralyzed from his mother's womb. Because there is believed to exist a condition called hysterical blindness, he disdains to recognize any other cause as producing the blindness that Christ cured with saliva and clay, jumping at once to the conclusion that this also was a case of hysteria, and naïvely parallels Christ's case with one of Dr. Charcot at La Salpetriére. It was with less provocation that D'Artagnan said to Raoul, "I do not know, sir, who it was that taught you logic, but, whoever he was, he stole your father's money." Moreover hysterical blindness is so rare that in 1902 Kron succeeded in finding only twenty-six cases reported in medical literature, and all recovered without miraculous intervention. This perhaps may indicate the extent to which the Rev. Mr. Worcester had endeavored to discredit the miracles of Christ. However, undisturbed in his fatuity; and with a confidence that involves him in increasing difficulties, he proceeds calmly to assume that the deaf man whom Jesus cured was a hysteric, as if there were no other cause for deafness than hysteria, and that the cases of demoniacal possession were also hysterics. He quotes Charcot, "Of all nervous afflictions hysteria is the one which in the case of 'posses-

sion' appears to have played almost always the most considerable rôle." That illuminating sentence was a windfall to the Rev. Mr. Worcester. It came to him indirectly, to be sure, through some obscure German theologian, but he would like to have had it printed in small capitals at least. Still the little word, "*almost,*" like the little rift within the lute, invalidates that proposition as a major premise. What would one think of the proposition, "The angles of a triangle are almost always equal to two right angles?" It is of no value whatever. Any child of ten would laugh at it. Well the one is no more useless mathematically than the other is logically.

Still, the Rev. Mr. Worcester seems contented with his own progress, and if the world would accept assertion for proof he might seem to be getting on, but at this point he suddenly reaches an obstacle that gives him pause. What about leprosy? There he is, that healed leper,—he cannot be concealed. There is the corpus delicti. All the world has seen it and it is too late by many centuries to attempt to shuffle it out of the gospel narrative by any process of pulpit legerdemain. And as if to make the Rev. Mr. Worcester's task the more hopeless it is not one leper only that he would have to suppress, but ten. Oh! if there were only one! How quickly would the Rev. Mr. Worcester call him into his study, seat him in the visitor's chair (that chair that Mr. Worcester says modestly "will undoubtedly have a future historical interest," perhaps secondary only to that of the other venerated chair which Mrs. Eddy has already made famous and even sacred), seat him in that chair, then, hypnotize him and "suggest" to him, pleasing euphemism, that he had made an altogether unaccountable mistake in his diagnosis of himself, and that it was really hysteria and not leprosy that was the matter with him. But among ten, alas, there is always sure to be at least one who is refractory to hypnotic suggestion, and unless all of them could be suppressed, or unless the gospel narrative could be permanently mutilated without the Rev. Mr. Worcester being detected in mutilating it, it were all useless. It's a sad business, and that's the truth. No Indiana novelist ever got his hero into such a predicament. Perhaps the nearest thing to it in all literature is the state of mind of the three brothers, Peter, Martin and Jack, when they felt it necessary for them to devise some expedient for evading their father's injunction

against shoulder-knots, gold lace and flame-colored linings. The Rev. Mr. Worcester should be familiar with this work, which is said to have cost its author a bishopric, for the great Dean, too, failed to present himself for examination in logic, and got his degree from the University of Dublin by "especial favor." The way in which the Rev. Mr. Worcester extricates himself from his trouble is interesting as a study in morality rather than in medicine. Here is how he does it. It is a good specimen of audacious blundering. "He is reported to have cured leprosy, which in the view of modern medical science is incurable. But we must remember that in the ancient world two types of leprosy were recognized, the one curable, the other incurable. And from the vague description given in the gospels we are unable to decide which type is referred to. An analogy to the healing of the milder type may perhaps be found in the well-known fact that certain forms of eczema are recognized to be largely of nervous origin and are amenable to the influence of suggestion. 'Eruptions of the skin,' says B. W. Richardson, 'will follow excessive strain.'" So Christ's cases of leprosy prove to have been, after all, mere cases of urticaria. Such reasoning would disgrace the cook of a pirate ship.

The Rev. Mr. Worcester has reversed his function. St. Paul magnified his office, but the Rev. Mr. Worcester is anxious to disparage and reduce the majestic proportions of the founder of Christianity to the sensational level of his own intellectual dishonesty.

This is not the method in use in the Roman church, when the question of miracles is considered. In 1889, Father Richard Clarke wrote a brochure on "Lourdes and its Miracles," in which he declares that every case of dubious etiology is rejected from the "Annals of Lourdes." Every case where there is even a suspicion of hysteria is vigorously excluded. Father Clarke was often present when the physician in charge of the "Bureau de Constatation" was examining the pilgrims who claimed to have received benefit from the miraculous bath. "In many cases examined in my presence," he says, "whose symptoms had consisted of partial or general paralysis, feeling of suffocation, continual retching, anesthesias or hyperesthesias, the physician brushed aside the evidence without the slightest hesitation and dismissed the persons who had been cured with a few kind words of encouragement, telling them

that they had every reason to thank Almighty God for his goodness to them, but warning them that what they had received was a grace rather than a miracle."

The Rev. Mr. Worcester thus seeks to degrade the miracles of Christ to a level that the priests at Lourdes refuse even to consider, as being below their own pretensions. I am by no means discussing the gospel miracles as miracles, and I do not suppose that it will be necessary, in examining the structure that underlies the Immanuel Movement, which is my only present purpose, to go further than the founder of that movement has himself gone.

"Religion and Medicine" then is the Rev. Mr. Worcester's graduation thesis, on the strength of which he proposes to practice medicine as an adjunct to theology, and, without any preliminary training, to embark upon the most delicate and exacting of all the specialties of that profession. But his pretensions are even greater than this. He becomes at a bound a self-constituted instructor in that specialty, and violates all the proprieties of the profession that he seeks to enter, by writing his own testimonials and advertisements for the periodicals.

I ought not to say that no preparation is expected. The Rev. Mr. McComb recognized the need of a thorough medical training, and in a prospectus published in the *Homiletic Review* for April, 1908, says, "As to the actual treatment of nervous disorders, the minister who proposes to take up the work would do well to familiarize himself with the procedure of a psychological clinic by *an actual visit* to, and examination of, the work of such a clinic." The Rev. Mr. Worcester styles his séances, "clinics;" the Rev. Mr. McComb conducts a "clinic," one of the Rev. Mr. McComb's acolytes, "a clergyman located in an average New England town," says, "I have a spiritual clinic every Tuesday and Friday, from 4 to 6. I cannot spare more time without jeopardizing other parish interests. From the first my clinic has been overcrowded. I am sometimes kept until 7 o'clock. So far as I know, not one has failed to improve after visiting my clinic." They have no fixed fees, but "patients should be encouraged to make voluntary offerings," the Rev. Mr. McComb says. The reports of their cases are as slip-shod as these statements would indicate. The whole scheme lacks scientific value as it lacks philosophic interest. It is repugnant to the spirit of medicine,

and its only result is to enlarge the boundaries of quackery. It claims especial value in what it calls the functional diseases of the nervous system, but it does not presuppose any knowledge of the nervous system, of its anatomy and physiology, except such as could be gleaned from a casual visit to one of the Rev. Mr. McComb's "clinics."

But why does it limit its scope to the functional diseases? Its power is, they say, from God. Is God's arm then shortened? They are so anxious not to overdraw on omnipotence that they want a certificate from a regular physician that the disease is only a functional one. They require this in order that they may keep on the sunny side of the law and also that those cases where God is powerless to act may be turned back to the physician. They at least refuse to touch them. "Give God the easy ones!" cries the Rev. Mr. Worcester,—that is, the functional cases which he evidently regards as not real diseases at all, but only states of mind. "He wants to get into the game, but He feels that He is entitled to a handicap."

If this be sacrilege, blame the Rev. Mr. Worcester for it, for if the expression be mine, the idea is his. It is he who imposes these restrictions on Omnipotence. In somewhat the same spirit Father Clarke reckons the cures at Lourdes at about five per cent. of all the cases, and of course ascribes this five per cent. of recoveries to an especial act of Divine Compassion. But why, then, only five per cent.? Can you imagine omnipotence making an especial effort and failing ninety-five times out of the hundred? Or, if it be not from inability, it must be from unwillingness. Well, what would you think, what would Father Clarke himself think, of a physician who was unwilling to permit ninety-five per cent. of his patients to get well? who, with power to cure them all, was yet hardly moved by partiality or flattery to cure five per cent? No, we cannot believe in a God who has favorites. The Jehovah of the Jews has become an anachronism. Our knees are stiff; we refuse to worship Him. The logical, ineludible truth is that there never was and never will be, at Lourdes or Guadalupe or elsewhere on this all-nourishing earth, a single instance of especial Divine interposition for the cure of disease.

What are these functional diseases that the Rev. Mr. Worcester wishes to exploit? The distinction between organic and functional diseases was not a scientific one. It was at best clinical and convenient, but the phrase was certainly mis-

leading and it is time it was discarded. It was the scrap-bag, the mending basket, in which the odds and ends of disease lay awaiting classification. The term has been retained with the full knowledge that it was a makeshift. We no longer believe that the habit-, occupation-, and fatigue-neuroses have no physical basis. Epilepsy is so far from being a merely functional disease that it has been often cured by a surgical operation. It is unquestionably a disease of the cerebral cortex. Hughlings Jackson stated his belief thirty years ago that chorea was caused by the plugging of the small vessels of the corpus striatum. It also is perhaps to be properly located in the cerebral cortex. Neurasthenia is a fatigue neurosis. Really, about the only functional disease that has not been taken out of the mending basket is hysteria, and here the self-limited activities of the Rev. Mr. Worcester and his kind have their narrow focus. Of course we cannot concede even this to the Immanuelists without at the same sending our fractures to the osteopaths, our glaucoma cases to the optometrist and our orthopedic cases to the machine-shop. There would be an equal propriety in raising these respectable industries into recognized medical specialties.

There is one thing which we physicians are at times disposed not to remember, which the Rev. Mr. Worcester and other irregular would-be practitioners of medicine never for a moment neglect. We often lose sight of the difference in point of view between the physician and the patient. Our effort is mainly bent upon the purely intellectual and scientific matter of diagnosis, but theirs upon their cure. Ours is the larger scope, theirs the more powerful personal interest. They do not care to have their symptoms translated into the uncouth jargon that disgraces medical terminology,—they want to get well. And if Christian science or Immanuelism will do it, they will bow down and worship it as Caliban offered to worship the drunken Stefano. Let us then keep in mind the patient's attitude. There is a certain amount of dignity in some patients, perhaps, that would revolt at using improper means to get well, for one may easily pay too high a price for health, but suffering patients may well be pardoned for seeking health even by illicit means and we must not forget that while the diagnosis seems often the chief matter, yet to heal the sick is our main purpose in life and the two are of course mutually consistent and mutually necessary.

I quoted one sentence from the unnamed correspondent of the Rev. Mr. McComb which deserves repetition, because it opens up the larger field that, at the beginning of this paper, I promised to enter. His words are, "So far as I know, not one has failed to improve after visiting my clinic." There is a scientific precision about this statement, a self-abnegation, a subtile insight, that make it a gem among medical case-reports. It is something new to us as yet because it is a clergyman discussing medicine. However, after discounting the elation of the boy with the new gun, who never fired it off without hitting something, the fact remains that these people do actually get results. They do really cure, or help to cure disease. So do the Peruna people get results. That is what all quackery thrives on,—its cures. All organized quackeries, witchcraft, judicial astrology, homeopathy, mesmerism, and Christian Science, have cured disease. Not all diseases of course, not all curable diseases even. I do not believe that all the varieties of quackery that I have mentioned, including the movement of the Rev. Mr. Worcester, ever cured, for example, a case of myxedema. But the truth is, they all do cure disease.

The Mussulman who writes a text from the Koran on a piece of paper, soaks the paper in a glass of water and then drinks the water, finds therein a potent cure for many diseases. The patient who takes a drop of a millionth dilution of common salt receives the same benefit. So a bread-pill, or a visit to the Grotto at Lourdes, or a pilgrimage to the Holy Coat at Trèves, have doubtless brought health to many sick persons. These things are not to be denied. Many individuals have had the same power. King Edward the Confessor cured scrofula by laying on of hands. Malcolm Canmore testified to his power at its inception.

> "A most miraculous work in this good king,
> Which often, since my here remain in England,
> I have seen him do. How he solicits Heaven,
> Himself best knows; but strangely-visited people,
> All swollen and ulcerous, pitiful to the eye,
> The mere despair of surgery, he cures;
> Hanging a golden stamp about their necks
> Put on with holy prayers: and 'tis spoken,
> To the succeeding royalty he leaves
> The healing benediction."

This power remained with the Kings of England for many centuries. Pepys went, on the 23rd of June, 1660, to see Charles II touch the sick that solicited his cure. Dr. Pettigrew says

that the number of those who came to be cured was enormous. Charles II cured in twenty years 92,107 persons whose names were inscribed in a register. Evelyn records that in 1683, a Presbyterian, who dared to say that those that the King had touched were as scrofulous afterwards as they had been before, was very properly sent to prison. Dr. Sam Johnson was touched by Queen Anne for the scrofula but without benefit. The royal power had departed. King Philip I of France had the same power and it was continued to his successors for centuries. Plutarch tells us that Pyrrhus could cure diseases of the spleen by rubbing the patient's body with his great toe. Pyrrhus' toe became further famous when, after his death and cremation, this toe was found, like Shelley's heart, to have resisted entirely the action of the fire. The Rev. Mr. Geer quotes a case of St. Bernard ," It was a case of wry-neck, and the bystanders could hear the bones (of the neck!) snap back into place as the Saint touched the sufferer." What an unwonted avalanche of light this case, thus cited by the clergy, throws upon the actual pathology of torticollis! St. Bernard cured many cases of blindness; so did St. Patrick. So, also, did Vespasian, who was a pagan, and worshiped strange gods. Hadrian, likewise a pagan, cured dropsy and fever by touching the patients. There can be no doubt that the miracles of Moses and those of the Egyptian magicians were wrought by exactly the same power, and doubtless, also, Christ recognized powers similar to his own in the cures which his disciples complained of as being wrought, in competition with their own, by some who did not acknowledge Christ's divinity or accept Him as the Messiah. Paracelsus, who was born the year after America was discovered, said, " Whether the object of your faith be true or false, you will nevertheless obtain the same effects. Faith produces wonders and whether it is a true or false faith, it will always produce the same wonders." Pomponatius of Padua says, in reference to miracles wrought by the relics of the saints, " Quacks and Philosophers alike know that if the bones of any skeleton were put in the place of the saint's bones, the sick would none the less experience beneficial effects, if they believed the relics to be authentic."

The first tale in the Decameron relates that Ciappelletto, a drunkard, a lecher, a perjurer, a thief, a man who practiced every vice and loved all iniquity, fell mortally ill while on a

journey. He deceived the Franciscan, who came to confess him on his deathbed, into believing that he was a triumph of purity and virtue. After his death, scraps of his clothing were eagerly seized upon as holy relics, miracles were wrought at his tomb, he became the patron saint of the community and was invoked for generations as San Ciappelletto. His cures were as geunine as those of St. Anne de Beaupré or Our Lady of Guadalupe, and perhaps more numerous.

Healing shrines were the object of pilgrimage long before the Christian era. Philostratus' tomb was famed for curing all manner of diseases,—consumption, dropsy, quartan ague, diseases of the eyes, while we are told that the "Excavations at Cavvadias have furnished proof of the miraculous cures that were effected at Epidaurus 500 years before the Christian era, precisely in the same manner, by suggestion, as in our time in Lourdes."

Charms, amulets, incantations, talismans, sorcery, witchcraft and magic, all have performed wonderful cures which have been recorded by numerous writers. Burton is full of them and Pliny, with his customary credulity, has recorded them by the hundred.

Now what is the factor common to them all? "The healing gift," many have answered in the past. That is, to be sure, the result of them all, but what does this gift of healing consist in? For among all these various and irregular forms, there must be something constant and invariable to produce these distinct and uniform results. Our ancestors believed that cures wrought by prayer, the invocation of the saints, and other canonical means, were from God, and that all others were from the Devil. It was in fact a Christian heresy that perpetuated for many centuries the dualistic belief in the existence of two independent and antagonistic principles, good and evil, moral light and moral darkness, God and the Devil,—perhaps the most fatal theory ever injected into civilization. But we are not trying now to discover two antagonistic principles, but one homogeneous one which alone will logically satisfy our needs. This one principle, this one common factor, is to be found in the persons cured and not in the agent that cures them. Each brings his own relief, his own benefit, his own cure, to the shrine with him and there enters into the enjoyment of what was already his. It is his faith, his

confidence, the hopeful attitude of his mind, that opens up to him his own unconscious resources and gives him that help which he ignorantly ascribes to the supernatural agency of the Saint whom he invokes or to the Christian scientist who mumbles the tiresome formulas of Mrs. Eddy. There is no more scientific name in the medical text-books than the phrase which the church itself introduced, "Saving Faith." This is not yet recognized as a remedial agent by the U. S. Pharmacopeia under the head of "Christian Science" or of "Lourdes," but it is no less active, effective and universal for that exclusion, and if Solomon had edited the U. S. P. it would certainly have been included.

I have not spoken at all of perverted mental functions in the causation of disease, although the thought opens up a wide field for research, especially, perhaps, in the production by ennui of neurasthenia, melancholia, dyspepsia, constipation, cancer and a host of other diseases, "Medical science has never gauged," says Matthew Arnold, "perhaps never enough set itself to gauge, the intimate connection between moral fault and disease. To what extent or in how many cases what is called illness is due to moral springs having been used amiss, whether by being overused or by not being used sufficiently, we hardly at all know and we too little inquire."

The direction of this psychic force to the *cure* of disease, however, has been practiced from the time when the first medicine man, with painted face and false horns, beat his tom-tom and shrieked out his uncouth incantations before naked savages, to our own day, when religious periodicals open their advertising pages to tuberculosis quacks and cancer fakirs. It bathes in the pool at Lourdes and impregnates the otherwise inert electric belt that restores lost manhood. It is found in every pill that the druggist compounds and enters every draught that the physician prescribes. They reckon ill who leave that out. As men reasoned logically before the mediaeval schoolmen had named the nineteen syllogistic moods, so, in the same way, physicians have unconsciously availed themselves of psychic influences since the world began. Professor Jebb says that "Galen's distinctive aim was to place medical science on a psychological basis by studying the affections of the soul in connection with those of the body," while in our own day Dr. Clouston affirms that "in every patient the condition of the cere-

bral cortex is a factor that must be considered." I do not find the law yet formulated that will explain adequately what we call psychic force with the same completeness as the heliocentric theory of the planetary system, the theory of gravitation, the undulatory theory of light, the theory of evolution or the germ-theory of infective disease. It must be a theory which will explain every case and a theory, like those I have mentioned, to which there can be no exception. It must be reached like all these by induction, and the facts have not yet been all considered, or indeed perhaps all ascertained upon which this theory must be erected. But enough facts have been ascertained to indicate the transcendant and momentous importance of the law that we are now considering. These facts have been contributed from a great variety of sources. Mesmerism, Clairvoyance, Chiromancy, Spiritism, Lourdes and Guadalupe, Christianity and Greek Philosophy, Christian Science, Hypnotism, Quackery and Prayer, all bring their more or less valuable increment of facts to the great discovery that surely awaits us. The Rev. Mr. Worcester does not seem to have contributed anything that will aid in this ultimate result. He has, to be sure, added a momentary emotional impetus to it, although, unfortunately, the impulse that he has sought to give it has been in a wrong direction.

"The application to medicine of inductive reasoning has put an end to humoral pathology, and given us bacteriology; it has destroyed mediaeval therapeutics and developed materialistic medicine." We have almost forgotten the existence of the soul and in our study of opsonins and tendon reflexes and bacilli and molecular processes we have almost come to consider the spirit as a secretion or function of matter, in the same way that Christian Science, following a hint of Plato and a theory of Plotinus, regards the body as merely a function of the soul and necessarily non-existent. These theories are perhaps equally untrue, or, if not equally so, it is useless to speculate upon which is the farther from the truth. But we know that our own position is not bad—it is only incomplete. And we are now at last beginning as scientific men to perceive that we may retain the benefit and evade the injury; that we have so far fixed our minds upon a half-truth only. What we have done has been done well, done with sincerity and insight. We have wonderfully advanced the Science of Medicine. It is proper that now some effort should be directed to developing the philosophy of medicine. What is

done is magnificent but it is not enough. "These things ought ye to have done, and not to leave the other undone." We must with Herbert Spencer recognize the truth that the mind can never be expressed in terms of chemistry and physics and cellular pathology. We must acknowledge with Weir Mitchell "'Tis not the body but the man is ill." The discovery of a new reflex, of a new sign, of a new disease, of improved instruments of precision or of diagnosis, are good and useful, but while our energies become more and more contracted daily into particular branches, of which there are now, it is said, between sixty and seventy in our calling; while the dynamic force of the profession is being attenuated into a multitude of currents which continue to subdivide themselves automatically into ever-narrowing specialties, the higher fields of medicine are abandoned to quacks, to Mrs. Eddy and to the Rev. Mr. Worcester. Dr. Tuke says, grandiloquently, but well, "I want medical men in active practice, to utilize this force, to yoke it to the car of the son of Apollo, and rescuing it from the eccentric orbits of quackery, force it to tread with measured step the orderly paths of legitimate medicine."

It would not be expected that a number of the medical profession would undertake to disparage so large a part of his life-work as the cure of physical ills, and yet we must remember that there are nobler functions than this in our profession. Perhaps health is not the best thing in the world. Perhaps it is merely a step to something higher than itself, and while our professional effort is of course directed mainly to the restoration of the health of our patients, yet higher, spiritual interests ought not to be neglected. It may be, in a high sense, better for a patient to endure inevitable ills with a cheerful resignation than to obtain relief from trivial ailments. The lessons that disease has to teach to those whom it attacks are lessons of fortitude and patience, but lessons also of unselfishness, sweetness and humility. It has been often said that sickness should be a means of grace, and the saying is a very high one and its truth is often tested by convalescents. But it is not given to every patient to become convalescent. His lot may be to have a disease from which the hope of physical recovery is absent. There is, to the student of human nature, scarcely any more interesting spectacle than the moral development of these cases of hopeless disease. Many patients become bitter, comparing their hopeless state with the flourishing health of others. Envy attacks them and sour regret at not having had all the pleasure that had been possible for them

in the past. They become selfish, complaining, heartless. Dr. Johnson once said that every sick man was a rascal. It was of such as these that he spoke, and the worst of the matter is that his remark is at bottom true, although it is not by any means of universal application. Sorrow and bereavement, also, bring out the weakness and selfishness that are inherent in some characters. But these cases do not exemplify the blessed ministry of pain and sorrow. To some, sickness is a blessing and not a curse. In them the gentler virtues develop perceptibly. The voice becomes milder, the smile sweeter, the words softer. The thoughts are nobler, and we are often amazed witnesses of the softening and purifying results of sickness. This is more than resignation, more than patience, more than fortitude. It is the development of character and if there is a common purpose that should bind medicine and religion with an indissoluble and mutuably helpful bond, it is the congruous union of effort for the simultaneous uplifting and strengthening of personal character. The author of the Epistle to the Hebrews says, in his own dialect which, though different from our own, is yet a noble one, "Now no chastening for the present seemeth to be joyous but grievous; nevertheless, afterward it yieldeth the peaceable fruit of righteousness unto them which are exercised thereby." And St. Paul says, "For our light affliction, which is but for a moment, worketh for us a far more exceeding and eternal weight of glory." And the older I grow the more convinced I am that the utterances of St. Paul are usually worthy of respectful consideration. Character has been described as a perfectly educated Will,—it is the intuitive and habitual preference of higher motives over lower motives in the moral world. It is the mark to which all human effort is consciously or unconsciously directed, it is the center of every circle. To its development pleasure and pain alike contribute,—joy and sorrow, sickness and health, riches and poverty, honor and shame. It is the aim of civilization and the end of philosophy; the supreme purpose and the ultimate achievement of life.

Here is the common ground upon which we will meet the Rev. Mr. Worcester and his fellows. To this noble destiny was the church called and in this calling it will receive from the profession of medicine the aid and support that we, as members of a coördinate vocation, with similar ends but by different paths, will gladly, constantly and loyally render them in the exercise of their holy office.

# SOME RELATIONS OF NORMAL SUGGESTION

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The word suggestion is given a very wide range of meaning. In its commonest acceptation it is used to indicate any idea or stimulus entering the mind and thereby calling up another idea. A moment's consideration of this mental process, however, will convince us that it is little else than what is known as the association of ideas. Some writers make the term include under it any influence that one person may exert upon another. On the other hand, the word is used by some in a very restricted sense to indicate the intrusion of ideas or images into the mind when it is in a state of hypnosis or hysteria. This usage, in my opinion, is too narrow, as a like intrusion is possible when the mind is in a normal state, the nature of which process it is the purpose of this paper to discuss.

In order to understand what suggestion is, it will be necessary first to comprehend clearly what is meant by conscious and subconscious mental action. I will endeavor to make this plain by an illustration. When a pupil begins the study of the piano, he is at first shown that to produce certain tones he must strike certain keys in a certain way, and his first lesson is taken up with fixing in his mind clear images of these acts. His attention is directed particularly to the position and action of his fingers, in order that he may learn not only how to perform the separate acts, but also series of them in the most convenient way. That this requires patient attention he and his teacher are constantly and painfully aware. Then he learns that certain figures called notes represent these tones, and he is taught to connect the visual images of these notes so intimately with the images of the acts required to reproduce them on the instrument that the sight of the notes is all that is necessary to excite the motor mechanism required to play them.

After a longer or shorter period of such study the pupil becomes able to devote all his thought to these written notes, the stimulation of the mechanism necessary to their reproduction on the piano taking place in the shadow, as it were, without

effort and without special attention on his part. Still later he finds that the motor images representing a whole musical theme have become so well fixed in his mind, and so intimately linked together, and so associated with its title, that to fix his attention upon it is practically all that is required to initiate and keep up an orderly externalization of the series of images until the whole piece is performed. He may go further than that. Even while his mind is fixed upon an air which he has never before heard, his hands are now able to improvise an accompaniment. With his attention directed almost wholly to the song, in a deeper and less luminous mental stratum images of harmonizing chords form and flow from his fingers practically unobserved.

In this illustration we see the motor images which preceded certain acts receding further and further from the mental viewpoint. We see acts, which at first were very difficult to perform and required the closest attention, later taking place almost automatically. Figuratively speaking, the field of mental vision is like that of the eye. There is a small illumined area in which the outlines of the picture stand out clearly surrounded by a wide border in which these are less distinct, and in which the blurring becomes more and more marked as we approach its fully darkened edge. The similitude is still further borne out by the fact that the focal area always exhibits a picture of the present moment of our experience. But in the mental field the indistinct border is made up of vestiges of sensory and motor images which have passed through the focal point in a connected and practically continuous stream. Now it is in this luminous, focussed area that conscious mental action goes on, that taking place in the shadowy periphery constituting what we mean by sub-conscious mental action. The former is presentative and clear, the latter re-presentative and dim, the two merging gradually into each other through more or less intimate and intricate connections.

We see also from the illustration, how that conscious acts originate in the conscious area, but are usually externalized subconsciously. Now this is the very point in question. For manifestly, if stimuli could be intruded into the subconscious field from without and not from the higher consciousness, as is ordinarily the case, such stimuli might be externalized without fully coming into consciousness at all, or even might rise into and become a dominating element in our conscious mental action

itself without the latter knowing whence it came. Such surreptitious intrusion of an idea or image into the field of subconscious mental action is what I mean by suggestion.

Let me illustrate again. Two men are standing on the street corner in earnest conversation. Their attention is directed intently to the subject they are discussing. As the argument goes on A thrusts his hands again and again into his pockets. Soon B is seen to do the same thing. A begins to smooth down the sand with his foot and after a few minutes B is seen to copy his act. Here the images of acts that are commonplace, and therefore not startling, entered the mind of B without rousing his attention and without calling it away from the topic of discussion on which it was focussed, and therefore, meeting little or no opposition, passed quickly into the motor mechanism and were externalized. This is normal suggestion. Consciousness, you will observe, remains fully active but is so preoccupied that it offers practically no inhibition to the subconscious stimulation of the motor mechanism by the intruding images.

Let me use another illustration. Here the hypnotist has his subject before him. He directs the latter to dismiss as much as possible all opposing thoughts from his mind and to give up his attention wholly to him, to look him straight in the eyes. He thereupon makes a few passes over the subject's forehead, instructing him to roll his eyes upward as far as possible. The subject's consciousness, in that way, is so absorbed by these unusual acts that the operator readily insinuates the idea into his mind that he is falling asleep, that he is asleep, and soon he ceases to be conscious of what is going on about him. He is hypnotized. His higher consciousness is wholly dissociated, split off as Sidis would say, leaving the mind in a subconscious dreamy state and wholly exposed to the images which the operator may wish to intrude into it. These he now insinuates boldly without any regard to their strangeness or incongruity, and the subject becomes an intelligent machine in his hands.

Plainly this is a different process from that just described. In the former, consciousness was only temporarily distracted and images of a kind not likely to arouse its attention, were intruded indirectly and surreptitiously into the subconscious mind. In the latter case the higher consciousness was completely swept aside, so that images of unusual acts were intruded freely and directly into the exposed and unguarded subconscious

field, and without opposition immediately accepted and executed. This is abnormal suggestion, the difference between it and the normal variety depending chiefly upon the difference in the degree of dissociation. Normal suggestion, then, is the surreptitious intrusion of an idea or image into the mind during the temporary distraction of the higher consciousness. And manifestly the principal conditions favoring it and the elements of which it is composed, are the following: First, and chiefly, the temporary drawing aside or distraction of attention. Second, the dismissal or exclusion from the mind of opposing thoughts. Third, the repeated presentation of images, in such a way, and of such a nature as will not alarm the temporarily distracted attention, and which therefore must be presented indirectly. Fourth, the feeble opposition offered to these images, and their finally uncritical acceptation as controlling factors of the mind.

Let me give you a concrete instance. A certain person is suffering from that very common condition of health which I will term a painful rise in subject-consciousness. I believe that seventy-five per cent. of all people experience this at times to some degree. By it I mean the coming into view in a disagreeable way of the operation of the organic functions. Patients of this class will complain of uncomfortable sensations in the stomach, in the bowels, in the bladder, in the back, in the heart, in the throat and chest, in the head, in the joints and muscles anywhere and everywhere. There is possibly no special disease in these parts, but only a disturbance of their functions whereby the actions of these functions, which normally take place in the dark, as it were, come to the foreground and obtrude themselves upon the patient's attention, so that he becomes introspective, and begins to conjure up the idea that these parts are in some way diseased.

Into the hands of such a person is placed a treatise which informs him that an omniscient being reveals in it the true nature of his afflictions and an infallible remedy for their relief. He reads in the said treatise that what is termed disease is but a state of thoughts, that man is but a fragment of divine mind, and that he suffers only when by error or sin he falls below the standard of the original. As there is therefore no material body there can be no real disease and consequently the pain from which he thinks he suffers is but an error of mortal mind, that being the term applied to him to distinguish him from the

original divine mind which is God. Manifestly this would interest him greatly. He reads further that by continued contemplation of divine mind he can regain the status from which by error and sin he has fallen, and that then his sense of discomfort will be replaced by one of comfort, because his mortal mind will be replaced by divine mind. Now, if he can grasp this thought, it might easily absorb his entire consciousness, even to the extent of making him temporarily forget the disagreeable symptoms from which he sought relief. In the meantime his book has been repeating and repeating, "All is mind. Matter does not exist. Your body does not exist except in thought. There is therefore no such thing as physical disease. Your pain was only an obsession of mortal mind. It is gone because it never was present." And as the relief he has experienced in those moments of absorbing rapture seems to justify the statement, the idea that he is restored to oneness with the divine mind and therefore does not and cannot suffer pain, becomes a more or less permanent mental possession.

Here we find all the conditions that favor, and all the elements that make up an act of normal suggestion. The attention was roused, absorbed and finally distracted. Inhibition of opposing thoughts was at its highest pitch. The idea that a cure was at hand and was actually taking place knocked gently and insistently at the unguarded door of his very receptive subconsciousness, at a time, and in a way not looked for; and after a little while, without opposition, uncriticised and unobserved, it silently entered into and became an acting and controlling figure in his mental procession. While his mind was wrought up by the vision of restoration to such a relation with the divine mind that disease was no longer possible in him, and while he was endeavoring to figure out in what way the transformation would take place the miracle was performed by a simple act of normal suggestion. It is difficult to conceive of an instance of such in which the receptivity of the subject, and all the other conditions favorable to suggestion, and all the components of the act itself were present to so complete an extent and in such perfect detail.

Take another instance. An inebriate who has ruined himself financially, has beggared his family, lost his friends and his health by his habits, and who may therefore become a very interested and receptive subject, is induced to tell his troubles

to his clergyman and seek relief. The minister replies that a being, who is all-powerful, who controls everything and every one, forgetting none, has made a declaration by which he has bound himself to alleviate just such conditions. Manifestly our patient will be greatly interested. The operator points out to him that his disease is a moral one, that it is only with moral assistance that he can be relieved, and further that moral assistance is not only available, but is to be had simply for the taking. Naturally our patient's interest increases. He is moreover told that it may be had now, that all his evil desires and tendencies may be changed at once and without cost. His attention is absorbed. His mind is filled with visions of restored health and happiness. He forgets his wretchedness and thraldom, in that moment of distraction the suggestion enters his subconscious realm,—you are free. It is not now that he can be cured, or that he may be cured, but you are cured. Here again we have a pretty accurate picture of an act of normal suggestion. I would not have you think that the trick of curing inebrity is always so easy to perform and so cheap as the foregoing might indicate. I think the opposite would be nearer the truth. The case is cited only as a type.

Take still another instance. An inebriate appears at an institution administering one of the so-called inebriety cures. He is very anxious to be cured of the evil habit and naturally becomes very interested when the physician informs him that by the injection of a certain remedy into his arm once or twice a day, a change can be wrought in his system rendering it antagonistic to alcohol. For obvious reasons he is further told that he may drink as much as he pleases as it will not interfere with the treatment. He receives his injections, containing apomorphia, and he soon finds his stomach rebelling against the whiskey he has been given. After a fortnight or so of this treatment the patient is informed that the trick is done and that his system cannot any longer tolerate liquor. If he wishes proof of the fact let him try it, and he is given what they call "the test." He is well loaded up with emetics and given liquor, also dosed, with the only possible result, a day of vomiting, from which he emerges with the idea firmly fixed in his mind, intruded during that test, that a change has actually been wrought in his economy. In another week the test is repeated, and the patient emerges from it more fully convinced than ever that his appetite

for liquor is destroyed. And when finally, with vivid memory of those days of vomiting, he is dismissed from treatment, he is told that he is cured, that he not only will not desire liquor but that if he drinks it again it will destroy his life. Naturally, then, he leaves the institution with a powerful suggestion dominating his mind.

I have cited the foregoing illustrations with a double purpose. First, because they seem to me to be good examples of normal suggestion, and secondly, to bring them specifically before your minds at this time as embodying the principles, to some extent, at least, of certain cults or non-professional schemes of treatment, which whether they pretend to be or not really are, suggestive in character. And right here I must again call your particular attention to the fact it is the distraction of attention, or technically the temporary partial dissociation of consciousness which is the essential and chief element in the suggestive act. Indeed suggestion cannot occur without it, but becomes an easy matter in its presence. In hypnotic suggestion, as I have already pointed out, the complete dissociation of the higher consciousness is practically the entire act, as when this has been brought about the intrusion into the mind of practically any image may be made in the most direct and haphazard way. Can you distract your patient's attention just sufficiently to permit you to intrude controlling ideas into his subconscious mental stream? Then you can exercise over him all the powers of normal suggestion. Can you completely dissociate his conscious states? Then you can hypnotize him and his subconscious mind will readily accept and execute impulses directly from you.

But what will be the fate of suggestions so insinuated into the mind? Will they persist indefinitely, or will they in turn be displaced by other more insistent mental pictures? To these questions one can but reply that suggested ideas, like any other ideas, must take their chances. That they are often very hard to displace is certain, but not more certain than is the fact that they are often very short lived. The Eddyites evidently believe that their suggestions will require constant reinforcement,—at least they are instructed to make continual use of their suggestive machinery. That the suggestion involved in the inebriety cures fades, and often quickly, is a fact well known to all, as also is the fact that later experiments upon subjects who have relapsed are more difficult to perform and far less successful and

lasting than the first. It is regarded as a psychological principle that normal suggestibility decreases with each successive effort made in the same way, while the opposite is true regarding the suggestibility of the hypnotic or hysterical subject.

Now the natural questisons which arise in your minds at this point are the following: If there is such potency in suggestion, why have physicians not made more out of it? Why has the matter been left almost wholly in the hands of cults and charlatans? In answer to these questions, it is, of course, to be admitted that this power is exercised, at least to some extent, by us all. Many physicians have considerable influence in this way without being fully aware of the fact. But when they attempt to make a business of suggestion, they encounter at the very outset what appears to be an almost insurmountable difficulty. They find that they have not at ready command an adequate means of properly and sufficiently distracting their patient's attention. In the first two instances of normal suggestion cited, you will recall that this distraction was induced in the subject by working upon his religious sentiments, while in the third it was brought about by a powerful impression made upon the mind by a sick stomach.

Now if the physician is of a truly religious character, and knows a little about psychology, he may scorn to make use of his religion as the preliminary part of what he knows to be an act of normal suggestion. It may seem to him to be fraud to work his patient's mind up into a state of expectancy of divine assistance, in order that he may intrude a purely human and fallible suggestion into it. If he has no religious beliefs, he will, of course, fail to interest his patient very greatly in this way. On the other hand, the operator who himself believes that the new impulses which enter the subject's mind are divine in their nature and origin, can conscientiously elevate the whole act to the dignity of a religious ceremony. This the average physician will find hard to do, and I may add that he will find it still harder to provide a good substitute for it. But, as I have already said, without this preliminary distraction efforts at suggestion must fail.

But even could he surmount this difficulty he would immediately encounter another scarcely less formidable. He is the patient's physician and will be held accountable for the correctness of his treatment. If he informs the patient that he is

treating him by suggestion, his suggestibility at once weakens. If he operates under some pretense, and his treatment fails, as it frequently must, how shall he square himself and retain the patient's respect? The Eddyites clear this difficulty at a single bound by constituting the patient his own physician. They say to him, in substance, "Here is the remedy. It is infallible and universally applicable. In this book are unmistakable directions how to use it. If, therefore, it fails to cure you, the fault will be your own." Now I call that clever, and I indulge myself in the belief that the number of registered physicians must be very few whose hardihood is so great that they could make such a claim for any therapeutic measure we possess, even though it were normal suggestion. It would look, then, as though the greater one's knowledge of the real nature of suggestion, the less he is likely to be able to make a successful use of it. In the third case cited above the emetic was the distracting agent, but manifestly this has its objections for general use. Here, however, lie the difficulties. If you can surmount these, the rest will be comparatively easy.

What then, you will ask, are the scope and limitations to the use of normal suggestion as a therapeutic agency? Plainly it will not heal a broken bone to suggest to the victim that it is not broken, nor will it help the sufferer from a dislocation very greatly to keep insinuating into his mind the idea that his injury is only imagination. Even the Eddyites now admit that their method is not applicable to these conditions, which is rather suspicious when one considers its alleged origin. It is a fact, however, that in every disease patients always manifest a group of symptoms which are to a great extent mental and which are therefore to the same extent susceptible to psychic treatment. It has doubtless also been the experience of every one here to observe the sudden radical change in the action of the heart produced by mental shock. Some of you have seen a cataleptic patient with his fixed stare, muscular rigidity, and his cold cyanotic extremities, in a few moments transformed into a new being, active, talkative, and with improved circulation, the whole taking place without apparent physical cause. Every one of you can recall to mind instances of reactions between mind and body of the profoundest character. The marked effect of the environment upon the patient's mind and through it upon the course of his disease is too well known to you all to need mentioning, as

also is the rôle played by worry and anxiety in the causation and perpetuation of pathological conditions. It is the wise physician who comforts his patient's mind besides binding up his wounds.

But he must not neglect to bind up wounds. Suggestion will doubtless accomplish more in the treatment of functional disorders. The neuroses, the incipient stages of the pure insanities, the obscure nervous derangements so common at the evolutional and involutional periods and above all the indefinite ailments referred to above, seem to me to form the principal field in which this agency is destined to play its most important therapeutic rôle. And even here it will be the adjunct quite as often as the principal remedy.

This naturally brings the question to your minds, as to what then is the status of the above-named cults in the light of the foregoing, and what, if any, value they have. As already remarked, a large proportion of people in this country, at least, suffer at times from a disagreeable rise of subject-consciousness; and while, undoubtedly, this has its foundation in actual disease, the latter obtains in so intangible a form as not to be readily demonstrable. Indeed, it may be said, speaking loosely, that the symptoms of which many such persons complain, do actually exist chiefly in their minds, and thus their dismissal under the proper suggestion becomes quite possible, as already shown. That the Eddy cult does step in here and relieve a large amount of such human suffering, and make many people happier, and better to perform the duties of their lives, is, in my opinion, beyond all question. That this is rendered the more possible because of the strong religious tendencies of this class has doubtless already occurred to you.

I am aware that the leaders of the said cult repudiate absolutely the explanation I am offering of the method of action of their system, and I think they do so for one of two reasons. Either they are self-deceived and make no effort to comprehend the way their scheme of treatment operates or, understanding it, they repudiate the fact in order to conceal it. Because, for reasons given, if their patients knew they were being treated by suggestion, such knowledge would be almost fatal to the purpose. If Christian Science is normal suggestion, then it is not Christian Science; and if you take away the religious part of it, you remove the principal element which makes possible the suggestion on which it depends. But whatever may be the principles em-

bodied in it, and however these may be concealed in its title, it certainly appears to meet, and meet successfully some of the therapeutic requirements of its followers, and to this extent, at least, its existence is justified. That it has spread so widely is the best proof that it was wanted.

Unfortunately, however, they do not confine themselves in their practice to the field I have mapped out, and in which they might accomplish much. They attempt to treat conditions which are not chiefly disturbances of the subjectivity,—diphtheria, pneumonia, typhoid fever, and the like, and of course they fail and bring discredit upon themselves. Unfortunately, also, because of the fact that suggestibility is greatly increased in nearly all diseases, persons acutely sick are readily led to believe they are improving when they are not, and easily blinded to any increase in the severity of their symptoms, so that they become a willing prey to the designing or self-deceived enthusiast. And if I am right in saying that suggestion is the active agent in their scheme of treatment, then the sick child and the delirious or unconscious patient would be left utterly to the mercy of their disease. The so-called healers deny this absolutely. They demonstrate over such cases, say they. They sit in silence by the sick bed, and in some mysterious way attract the divine effulgence and reflect or radiate it into the mortal mind lying there, and thereby, they say, bring it back into its proper relation with its divine origin. Plainly there is no room for suggestion here. If anything occurs at all, and I must be permitted to express a doubt as to whether such is possible, then it must be the effect of some influence which is capable of acting upon an unconscious mind through the mind or personality of another. Can you explain the phenomenon?

Regarding the future, I believe that just as the suggestive act in the so-called cures has in a great measure lost its efficacy since its nature has come to be better understood, so will the cult in question suffer when it passes into the hands of the second generation who will have observed its failures, and seen many of its votaries perish in spite of it, and even its very founder fall a victim of what she has been pleased to term error of mortal mind. But people are slow to learn, and in my opinion, the range of its applicability is too wide to permit it soon to pass out of vogue. Its disintegration will be very slow. It is a fact that nothing is what it seems to be, and that the very best we can say about anything is, that it is thus or so to the best of our knowledge and belief. It is, then, just possible that some of the claims

of Christian Science which now seem to contradict the evidence of our reason and even of our senses, may prove to be right just as some of the claims of medical science will possibly prove to be wrong.

Regarding the status of the latest religious movement with healing aspirations, it is perhaps too soon to say much. It has hardly been in existence long enough to have established a status. As to its merits from a therapeutic point of view, one can only say that it is never right to condemn a scheme of treatment until it has been fairly tested. We must admit that when they tackle the habituations as a specialty, and that if they are relying upon suggestion chiefly as the agency to work the cures, they show themselves willing to put their method to a pretty severe test. Habitues, during the time of a debauch, would hardly, in my opinion, for reasons already given, be very suggestible subjects. And when sober they are usually so cock sure of themselves that they will not readily seek relief, but if they can be induced to do so, and their interest sufficiently roused, I am far from denying the possibility of their getting it. Of course it will always be difficult to distinguish here a result that has arisen out of a promise or pledge from that which is the product of suggestion, but at least occasional results will be forthcoming. The applicability of their system, in so far as it is normal suggestion, to the disturbances of the subjectivity seems to me to be much the same as that of Eddyism, but will probably prove less efficacious because their distracting agency is weaker. Their employment of hypnotic suggestion manifestly involves both advantages and disadvantages.

But if, on the other hand, the cult in question relies directly upon the power of religion to effect their cures, then I have nothing to say. I am not competent to discuss the question in this relation. I might, however, quote one sentence from the Rev. Charles H. Parkhurst of New York City, who is presumably an authority on such matters, for you to think over. "Say all you please about the might of the Holy Ghost, every step in the history of ameliorated civilization has cost just so much personal push." This was spoken on another subject, but it seems to me to be pertinent here. But as to the matter of the ethics involved in an attempt to practice medicine without preparatory study of it, or in wheedling the acutely sick with a subtle mixture of religion, suggestion and what not, I might say a good deal. But those are matters which do not come properly under the topic of

my paper. I fail to get a very clear idea of the movement from their rather vague literature, but at least they acknowlege the reality of disease and the existence of medical science, two saving clauses of much importance. Indeed they seem to wish to work in conjunction with the physician and administer their particular forms of psycho-therapy on his prescription.

But without wearying you further with this discussion I beg to offer for your consideration the following conclusions, namely: That psycho-therapy is at present practiced chiefly by the so-called cults, who have attained their very considerable popularity and strength mostly in a field in which they say the physician has failed; that it becomes, then, the duty of the physician to analyze this somewhat urgent situation to ascertain how and why he has failed, and how and why they have succeeded, if either be the fact; that if he finds that suggestion is the agency by which they win, let him adopt it,—it is not copyrighted; and finally that his successful entrance into this problematic field will depend largely upon his power to distract his patient's consciousness, which, as we have seen, is the essential preliminary to every act of normal suggestion.

## REFERENCE

SIDIS. Psychology of Suggestion.

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After the lapse of a few moments the stripling re-entered the house with an aged islander, who might have been taken for old Hippocrates himself. * * * Mehevi, saluting this old gentleman, motioned him to a seat between us, and then uncovering my limb, desired him to examine it. After diligently observing the failing member, he commenced manipulating it: and on the supposition probably that the complaint had deprived the leg of all sensation, began to pinch and hammer it in such a manner that I absolutely roared with pain. * * * he fastened on to the unfortunate limb as if it was something for which he had long been seeking, and muttering some kind of incantation continued his discipline, pounding it after a fashion that set me well nigh crazy. * * * All at once he ceased his operations, and I fell back, faint and breathless, with the agony I had endured.

My unfortunate limb was now left much in the same condition as a rump steak after undergoing the castigating process which precedes cooking. My physician, having recovered from the fatigues of his exertions, as if anxious to make amends for the pain to which he had subjected me, now took some herbs from a little wallet which was suspended from his waist, and moistening them in water, applied them to the inflamed part, stooping over it at the same time, and either whispering a spell, or having a little confidential chat with some imaginary demon located in the calf of my leg. My limb was now swathed in leafy bandages, and grateful to Providence for the cessation of hostilities, I was suffered to rest.

*Typee.* HERMAN MELVILLE.

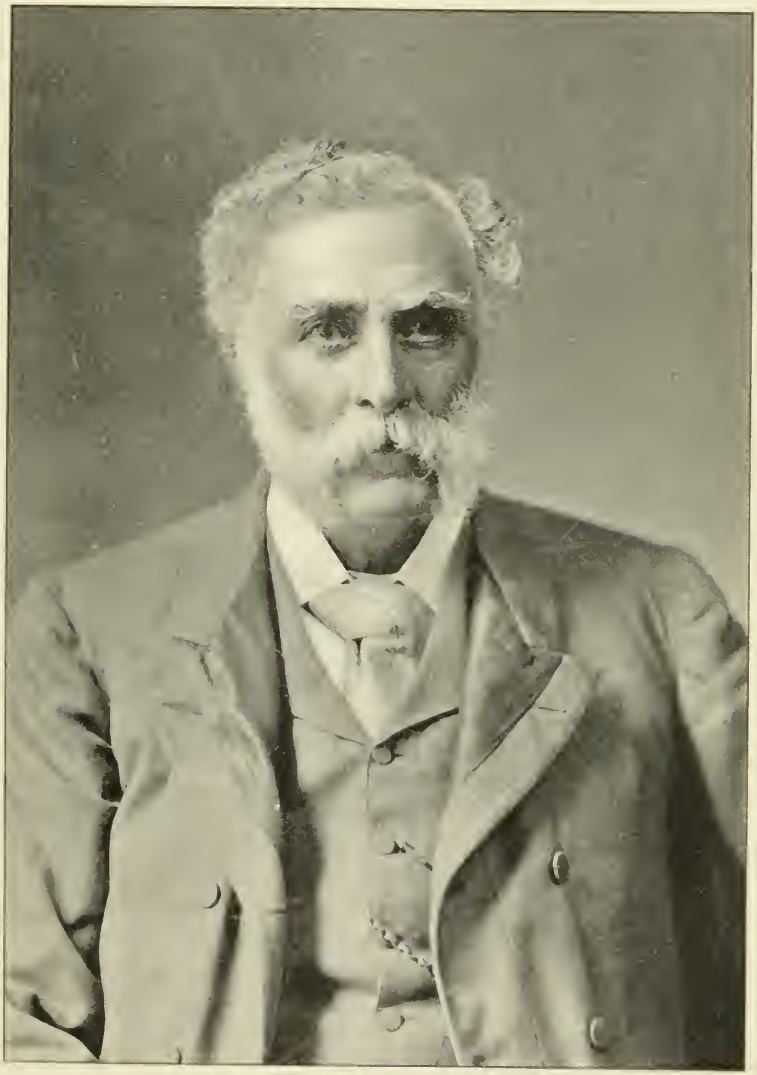
# Little Biographies

## XXXVI. DOUGLAS ARGYLL ROBERTSON.

PERHAPS no name is more frequently used in clinical medicine than that of Argyll Robertson, whose description of the phenomenon of the pupiliary reactions which bear his name has revealed one of the most helpful diagnostic symptoms, and the "Argyll Robertson-pupil" has now come to be regarded as practically pathognomonic of specific diseases of the nervous system. It is noteworthy that this contribution to neurologic accuracy has been made by an ophthalmologist, but this reveals the broad view of his specialty taken by Argyll Robertson and the application of his thought to the relations of ophthalmology to general medicine.

The Little Biographies which have been published in the ANNALS during the last three years may be divided into two groups: first, the sketches of the anatomists, and secondly, those of the clinicians. As anatomical science necessarily preceded clinical investigation, the investigators whose names are used for the designation of anatomical structures were men of the more remote past; whereas the modern character of clinical study is revealed by the fact that the men whose names are associated with clinical incidents are of the present era; and, indeed, many are now living.

Argyll Robertson died in Edinburgh on January 3d, of the present year, and an appreciative memoir has been published in the *Edinburgh Medical Journal* of February last. He was born in Edinburgh in 1837, the son of a lecturer and surgeon, and after his academic training in Edinburgh and Germany, studied medicine in Edinburgh and at St. Andrews and received his medical degree at St. Andrews in 1857. After a year as house surgeon in the Royal Infirmary, he studied abroad, particularly in Berlin, where he was influenced by Von Graefe, the leading ophthalmologist of that day. Argyll Robertson returned to Edinburgh and devoted himself to the specialty of ophthalmology. He was assistant in the university, and conducted the first class of practical physiology ever held there. He contributed frequently to medical literature, and in 1863 published his paper on "Observations on the Calabar Bean," proving it to be directly antagonistic to atropin in its action on the eye. He was constantly employed



DOUGLAS ARGYLL ROBERTSON

*Albany Medical Annals*
*June 1909*
*By Courtesy of Edinburgh Medical Journal*

(To face page 464)

in the medical service of the hospitals and schools of Edinburgh, and in the affairs of the College of Surgeons, and he was the recipient of many medical honors. He was Surgeon-Oculist in Scotland to Queen Victoria and King Edward; he was the first surgeon outside London to be chosen president of the Ophthalmological Society of the United Kingdom. He presided over the International Ophthalmological Congress in Edinburgh in 1894; he was president of the Edinburgh Medico-Chirurgical Society in 1896; and was president of the Edinburgh Branch of the British Medical Association, and three times of the Ophthalmological Section at the annual meetings of the British Medical Association. The University of Edinburgh conferred upon him the degree of LL. D. in 1896, and many foreign societies elected him to membership.

He was athletic and was particularly interested in golf. He was singularly gifted and attractive, particularly by his sincerity, kindness of heart and geniality. He was a neat and rapid operator, and introduced new procedures, particularly those of trephining the sclerotic for glaucoma, and suturing an everted lid in position over a splint. His clinics were enlivened by the play of humor, and he was always active in protecting any one who had made a mistake in diagnosis or treatment.

In the year 1869-70 he published in the *Edinburgh Medical Journal* the records of cases which showed that disease of the spinal cord is sometimes associated with loss of the light reflex of the pupil but retention of its movement on accommodation. This condition was by common accord christened the "Argyll-Robertson" pupil. This discovery can hardly be regarded as accidental, though occasionally some important addition in medical science follows from a casual observation. The permanent fame which will attach to the name of Argyll Robertson on account of this eponymic sign will be deserved because it is based upon a discovery resulting from a broad, substantial education and the habit of thorough study and painstaking observation.

# Public Health

Edited by Joseph D. Craig, M. D.

DEPARTMENT OF HEALTH—ALBANY, N. Y.

ABSTRACT OF VITAL STATISTICS, APRIL, 1909.

*Deaths.*

| | 1905 | 1906 | 1907 | 1908 | 1909 |
|---|---|---|---|---|---|
| Consumption | 14 | 26 | 14 | 17 | 17 |
| Typhoid fever | 0 | 1 | 1 | 0 | 1 |
| Measles | 5 | 1 | 0 | 4 | 0 |
| Scarlet fever | 0 | 0 | 0 | 7 | 1 |
| Whooping-cough | 1 | 0 | 0 | 2 | 0 |
| Diphtheria and croup | 2 | 1 | 5 | 2 | 1 |
| Grippe | 1 | 2 | 1 | 0 | 2 |
| Pneumonia | 13 | 16 | 12 | 14 | 12 |
| Broncho-pneumonia | 7 | 3 | 5 | 2 | 4 |
| Bright's disease | 17 | 20 | 14 | 17 | 25 |
| Apoplexy | 8 | 7 | 9 | 11 | 7 |
| Cancer | 13 | 9 | 7 | 7 | 8 |
| Accidents and violence | 4 | 4 | 0 | 2 | 9 |
| Deaths over seventy years | 37 | 30 | 38 | 32 | 27 |
| Deaths under one year | 23 | 19 | 18 | 19 | 16 |
| Total deaths | 158 | 157 | 152 | 161 | 148 |
| Death rate | 17.30 | 19.09 | 18.48 | 19.57 | 17.99 |
| Death rate less non-residents | 14.78 | 18.36 | 15.92 | 18.36 | 15.92 |

*Deaths in Institutions.*

| | 1905 | | 1906 | | 1907 | | 1908 | | 1909 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Resident | Non-resident | Resident | Non-resident | Resident | Non-resident | Resident | Non-resident | Resident | Non-resident |
| Albany Hospital | 7 | 9 | 14 | 4 | 7 | 12 | 8 | 8 | 11 | 9 |
| Child's Hospital | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| Home for the Aged | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| County House | 0 | 0 | 4 | 0 | 0 | 4 | 4 | 1 | 5 | 1 |
| Dominican Convent | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Home for the Friendless | 1 | 1 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| Homeopathic Hospital | 2 | 1 | 1 | 0 | 2 | 0 | 2 | 0 | 1 | 0 |
| House of Good Shepherd | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Hospital for Incurables | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| House of Shelter | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Little Sisters of the Poor | 1 | 0 | 0 | 1 | 1 | 0 | 3 | 1 | 2 | 0 |
| Penitentiary | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Public places | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 |
| St. Margaret's House | 3 | 2 | 0 | 1 | 1 | 0 | 3 | 0 | 1 | 1 |

*Deaths in Institutions.*

| | 1905 | | 1906 | | 1907 | | 1908 | | 1909 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Resident | Non-resident | Resident | Non-resident | Resident | Non-resident | Resident | Non-resident | Resident | Non-resident |
| St. Peter's Hospital | 5 | 0 | 4 | 0 | 7 | 4 | 0 | 1 | 3 | 4 |
| Sacred Heart Convent | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 1 | 0 |
| St. Francis De Sayles Orphan Asylum | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 |
| Second Precinct Station House. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Births | | | | | | | | 101 | | |
| Still and premature births | | | | | | | | 12 | | |

## Bureau of Plumbing, Drainage and Ventilation.

In the Bureau of Plumbing, Drainage and Ventilation, there were three hundred and eighteen inspections made of which one hundred and seventy-five were of old buildings and one hundred and forty-three of new buildings. There were fifty-two iron drains laid, forty-eight connections to street sewers, fifty-nine tile drains, two urinals, thirty-three cesspools, seventy wash basins, ninety-one sinks, seventy bath tubs, fifty-three wash trays, one butler's sink, ten trap hoppers, one hundred and thirty tank closets and four slop hoppers. There were two hundred and twenty-five permits issued, of which one hundred and seventy-seven were for plumbing and forty-eight for building purposes. There were seventy-eight plans submitted of which eighteen were of old buildings and sixty were of new buildings. There were two houses tested with peppermint and there were twenty-eight water tests. Twenty-one houses were examined on complaint and fifty-six were re-examined. Ten complaints were found to be valid and eleven without cause.

## Bureau of Contagious Diseases.

*Cases Reported*

| | 1905 | 1906 | 1907 | 1908 | 1909 |
|---|---|---|---|---|---|
| Typhoid fever | 2 | 6 | 8 | 4 | 1 |
| Scarlet fever | 5 | 22 | 4 | 139 | 9 |
| Diphtheria and croup | 7 | 6 | 41 | 29 | 4 |
| Chickenpox | 1 | 4 | 1 | 9 | 3 |
| Measles | 201 | 3 | 15 | 227 | 5 |
| Whooping-cough | 0 | 1 | 0 | 0 | 0 |
| Consumption | 0 | 0 | 19 | 35 | 37 |

*Contagious Diseases in Relation to Public Schools.*

| | Reported | | Deaths | |
|---|---|---|---|---|
| | D. | S. F. | D. | S. F. |
| Public School No. 6 | .. | 2 | .. | .. |
| Public School No. 7 | 1 | .. | .. | .. |
| Public School No. 12 | 1 | .. | .. | .. |
| Public School No. 15 | .. | 1 | .. | .. |
| St. Patrick's School | .. | 1 | .. | .. |

Number of days quarantine for diphtheria:
Longest..... 24 Shortest..... 8 Average..... 17

Number of days quarantine for scarlet fever:
Longest..... 36 Shortest..... 18 Average..... 26 8/10

Fumigations.
Houses..... 27 Rooms..... 88

| | |
|---|---|
| Cases of diphtheria reported | 4 |
| Cases of diphtheria in which antitoxin was used | 4 |
| Cases in which antitoxin was not used | 0 |
| Deaths after use of antitoxin | 1 |

### Bender Report on Tuberculosis.

| | |
|---|---|
| Positive | 10 |
| Negative | 31 |
| Failed | 0 |
| Total | 41 |

### Tuberculosis.

| | | | |
|---|---|---|---|
| Living cases on record April, 1909 | | | 331 |
| Reported during April, 1909: | | | |
| By telephone | 0 | | |
| By Bender | 10 | | |
| By card | 16 | | |
| | | 26 | |
| Dead cases reported by certificate | | 11 | |
| | | | 37 |
| | | | 368 |
| Dead cases previously reported | | 7 | |
| Dead cases not previously reported | | 11 | |
| Duplicates | | 1 | |
| | | | 19 |
| Living cases on record May 1, 1909 | | | 349 |

### Total Tuberculosis Death Certificates Filed.

| | |
|---|---|
| April 1909 | 18 |

### Bureau of Pathology.

*Bender Laboratory Report on Diphtheria.*

| | 1905 | 1906 | 1907 | 1908 | 1909 |
|---|---|---|---|---|---|
| Initial positive | 6 | 3 | 35 | 25 | 4 |
| Initial negative | 20 | 24 | 27 | 113 | 21 |
| Release positive | 0 | 9 | 112 | 39 | 20 |
| Release negative | 4 | 10 | 132 | 49 | 5 |
| Failed | 0 | 0 | 0 | 0 | 5 |
| Totals | 30 | 46 | 306 | 226 | 55 |

| | | | | | |
|---|---|---|---|---|---|
| Examinations for tuberculosis: | | | | | |
| Initial positive | 0 | 0 | 4 | 4 | 8 |
| Initial negative | 0 | 0 | 11 | 13 | 29 |

## Bureau of Markets and Milk.

| | |
|---|---|
| Market re-inspections | 118 |
| Public market inspections | 23 |
| Fish markets inspected | 17 |
| Fish peddlers inspected | 6 |
| Milk wagons in clean condition | 27 |
| Butter fats below 3% | 2 |
| Butter fats from 3 to 3.5% | 5 |
| Butter fats from 3.5 to 4% | 19 |
| Butter fats over 4% | 1 |
| Solids below 12% | 7 |
| Solids from 12 to 12.5% | 2 |
| Solids from 12.5 to 13% | 7 |
| Solids over 13% | 11 |

## Bureau of Milk.

| | | Butter Fats | | | | Solids | | | |
|---|---|---|---|---|---|---|---|---|---|
| No. | Specific Gravity | Under 3% | 3 to 3.5% | 3.5 to 4% | Over 4% | Under 12 % | 12 to 12.5% | 12.5 to 13% | Over 13% |
| 3 | 32.6 | .. | .. | 1 | .. | .. | .. | 1 | .. |
| 5 | 32.6 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 11 | 32.4 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 22 | 31.6 | .. | .. | 1 | .. | .. | .. | 1 | .. |
| 23 | 30.6 | .. | 1 | .. | .. | 1 | .. | .. | .. |
| 32 | 31.6 | .. | .. | 1 | .. | .. | .. | 1 | .. |
| 36 | 32.6 | .. | .. | 1 | .. | .. | .. | 1 | .. |
| 78 | 31.6 | .. | 1 | .. | .. | 1 | .. | .. | .. |
| 80 | 31.6 | .. | .. | 1 | .. | .. | .. | 1 | .. |
| 95 | 32.4 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 96 | 33.4 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 117 | 32.6 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 128 | 31.6 | .. | .. | 1 | .. | .. | .. | 1 | .. |
| 131 | 31.6 | 1 | .. | .. | .. | 1 | .. | .. | .. |
| 147 | 31.6 | .. | 1 | .. | .. | .. | 1 | .. | .. |
| 162 | 32.4 | .. | 1 | .. | .. | 1 | .. | .. | .. |
| 163 | 31.6 | .. | 1 | .. | .. | 1 | .. | .. | .. |
| 165 | 31.4 | .. | .. | 1 | .. | .. | .. | 1 | .. |
| 169 | 30.6 | 1 | .. | .. | .. | 1 | .. | .. | .. |
| 171 | 31.4 | .. | .. | .. | 1 | .. | .. | .. | 1 |
| 172 | 29.4 | .. | .. | 1 | .. | 1 | .. | .. | .. |
| 186 | 31.6 | .. | .. | 1 | .. | .. | 1 | .. | .. |
| 192 | 32.6 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 194 | 32.6 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 195 | 32.6 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 199 | 33.6 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 357 | 31.4 | .. | .. | 1 | .. | .. | .. | .. | 1 |

MISCELLANEOUS.

| | |
|---|---|
| Mercantile certificates issued to children | 15 |
| Factory certificates issued to children | 7 |
| Children's birth records on file | 22 |
| Number of written complaints of nuisances | 37 |
| Privy vaults | 5 |
| Plumbing | 13 |
| Other miscellaneous complaints | 19 |
| Total number of dead animals removed | 578 |
| Cases assigned to health physicians | 88 |
| Calls made | 300 |

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# Society Proceedings

## MEDICAL SOCIETY OF THE COUNTY OF ALBANY

A regular meeting of the Medical Society of the County of Albany was held at the University Club, Wednesday, January 20, 1909. Dr. MACDONALD presided. The meeting was called to order at 9.00 p. m.

The following members were present: Drs. Archambault, L., Ball, Babcock, Bedell, A. J., Beilby, Blair, Branan, Curtis, Draper, Hacker, C. G., Harrig, Herrick, Hinman, Holding, Jenkins, Lanahan, Le Brun, Lempe, Lipes, Lomax, Macdonald, McHarg, McKenna, Moore, C. H., Morrow, Munson, Murray, Myers, C. L., Papen, Sr., Papen, Jr., Pease, Perry, Reynolds, Rooney, Root, Rulison, H., Rulison, L. B., Sheldon, Skillicorn, Theisen, Vander Veer, J. N., Van Slyke, Wiltse. (43.)

The minutes of the last meeting were read and approved.

Dr. H. RULISON asked what had been done in regard to the presence of illegal practitioners in the city.

Dr. MACDONALD replied that the Board of Censors had engaged Charles J. Herrick, Esq., of Albany, and that the matter had been placed in his hands. In the absence of Dr. Lempe he could not say just what progress had been made. It is very difficult to obtain evidence against these men, and members who have any data are asked to communicate with the Board of Censors.

Dr. RULISON offered to furnish names of persons whose evidence can be secured. The matter was referred to the Board of Censors.

Scientific program was as follows: "Treatment of Suppurative Conditions of the Accessory Nasal Sinuses," Dr. CLEMENT F. THEISEN. Discussion by Dr. ARTHUR G. ROOT and Dr. E. E. HINMAN.

Dr. ROOT compared later with earlier methods of treatment and pointed out particularly their dangers and difficulties.

Dr. HINMAN called attention to the recent work being done in skiagraphy of the accessory nasal sinuses. The skiagraph showed not only abnormal development of sinuses but frequently enabled the specialist to diagnose obscure cases of sinus disease and prepared him to meet such abnormalities as multiple sinuses, which would otherwise probably be

overlooked; great difference in size of sinuses and their occasional entire absence. Attention was also called to the rather frequently overlooked frontal sinusitis due to syphilis. Such cases clearing up without operation under specific treatment. They occur as an early secondary symptom.

Mastoiditis, Symptoms and Treatment, Dr. ARTHUR J. BEDELL.

Discussion by Drs. THEISEN, ARCHAMBAULT, L., LE BRUN.

Dr. THEISEN: The writer in his excellent paper has covered the subject very thoroughly. It is important to remember, as McKernon has pointed out, that a fatal meningitis, brain abscess or thrombosis of the sigmoid sinus may follow the radical operation, and in a certain percentage of cases the fatal issue must be regarded as the direct result of the operation. So that one should be guarded in making the prognosis. Dr. Thomas J. Harris a few years ago gathered the statistics of the various eye, ear, nose and throat hospitals in New York, and reported a considerable percentage of deaths following the radical mastoid operation. I believe that in many cases a modified radical operation such as the Heath, is to be preferred, and is much less dangerous.

The periosteal flap, recently advocated by Dr. Leland, of Boston, is said to be very effective (in doing the radical operation) in shutting off the aditus ad antrum.

I would like also to mention the cases of mastoiditis that run along sometimes for a long time without the usual symptoms. That is without temperature, without redness or oedema over the mastoid process, and sometimes without any tenderness on pressure. A long continued discharge from the ear should, however, even without symptoms of mastoiditis, make one suspicious that the mastoid antrum and cells are involved.

Within a few days I operated upon a child aged eight years, who had had a discharge from the ear for a long time, but never any mastoid symptoms, but on performing an exploratory operation the entire mastoid process was found to be diseased. The only symptom of mastoid trouble in this case had been the long continued profuse discharge.

Dr. ARCHAMBAULT: Dr. Bedell, having stated in beginning his communication that he would limit himself to the symptomatology and treatment of mastoiditis proper and that it was not his intention to dwell at any length upon its complications, it seems to me that we can hardly dismiss so important a disease as mastoiditis without a brief reference to its endocranial complications. This claim becomes all the more justified if we bear in mind that in the genesis of pachymeningitis externa, sinus thrombosis, suppurative leptomeningitis and cerebral abscess, the first and foremost etiologic factor is none other than mastoiditis.

It is important that we should be familiar with the clinical expression of the very onset of these complications as they are frequently amenable to surgical intervention.

As regards, first, pachymeningitis externa, in which condition we have to do very frequently with an epidermal abscess, all the symptoms of the primary simple mastoiditis are decidedly intensified, the temperature rises, the pain rapidly grows in severity and often is of a throbbing character;

there may be local tenderness and even external oedema. Extreme restlessness is usually present.

Thrombisis of the lateral sinus (the other sinuses may likewise be involved either simultaneously or in succession) usually gives rise to very definite manifestations. It is often ushered in by a severe chill. McKernon has recently estimated the frequency of this symptom at fifty per cent. A rise in temperature is almost invariably observed. Fever appears if it did not previously exist, or else increases rapidly and may reach one hundred and six degrees and even higher. Severe occipital headache, often accompanied by vertigo and vomiting, together with mental dulness, confusion, delirium and muscular twitchings soon develop and produce a clinical aspect which may now and then closely simulate that of meningitis. Usually, however, the whole condition is much milder. Finally and most diagnostic of all is the presence of external oedema behind the ear and over the posterior triangle of the neck on the affected side. This whole region is tender, the muscles of the neck become stiffened and the patient's head may, in marked cases, be drawn well over to the shoulder of the corresponding side. The thrombosis may involve the external and internal jugular veins, in which case these blood vessels stand out as firm, swollen and extremely sensitive cords.

Of the symptoms of suppurative leptomeningitis, I need only recall the marked retraction of the neck, the intense headache, the photophobia, the rapidly increasing drowsiness and delirium, the convulsive seizures in order to at once ensure the recognition of this rapidly fatal complication. In doubtful cases, lumbar puncture and examination of the cerebrospinal fluid will constitute an invaluable means of positively establishing the diagnosis.

Lastly as regards cerebral abscess, I again refer to McKernon who states that thirty-seven per cent. of cases are due to infectious processes of the middle ear. The symptoms may be entirely wanting and when present usually develop much more insidiously than those of the preceding complications. They may vary according as the abscess is cerebral or cerebellar in its localization. In a general way, there is severe and persistent headache, frequently tenderness on percussion, irritability and marked evidence of psychic disorder, drowsiness and, in later stages, coma. Vomiting of the cerebral type and severe vertigo are rarely absent in cases of cerebellar abscess and the same is true, though to a lesser extent, of intra-ocular manifestations, especially choked-disc and optic neuritis. Temperature changes when present are of no aid in the diagnosis. The pulse is generally slow ranging from forty-five to sixty-five.

Sinusitis, The Exploration of Sinuses with Bismuth and the X-Ray, illustrated by the Stereopticon, Dr. Arthur Holding.

Dr. Hinman.—I have noticed cases of bismuth poisoning as the result of injection of subnitrate of bismuth. How can this be avoided?

Dr. Rooney.—Cases of bismuth subnitrate poisoning, especially in stomach and intestines, have been proven to be from impurities, especially arsenic.

Dr. Macdonald.—What Dr. Rooney says is true. All bismuths are not

medical bismuths. I have used eight ounces at a time and I am not afraid of its use, but I am careful to get arsenic-free bismuth.

On motion of Dr. JENKINS the meeting adjourned at 9.30 p. m.

WILLIS G. MACDONALD,
*President.*

JOSEPH A. LANAHAN,
*Secretary.*

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A regular meeting of the Medical Society of the County of Albany was held at the Albany Medical College on Wednesday evening, February 24, 1909. In the absence of Dr. MacDonald, on account of illness, the Vice-President, Dr. Pease, presided. The meeting was called to order at 8:45 P. M. The following members were present: Drs. Archambault, J. L. Bedell, A. J. Beilby, Blatner, Blessing, Cook, Curtis, George, W. H., Gutmann, Hacker, C. G., Harrig, Herrick, Jenkins, Lanahan, Laird, Lawrence, Le Brun, Lomax, MacFarlane, McKenna, Murray, Neuman, O'Leary, Jr., Page, Papen, Sr., Pease, Reynolds, Vander Veer, E. A. Ward (29).

The minutes of the last meeting were read and approved.

The Board of Censors approved the applications of Drs. T. Frederick Doescher and Marcus D. Cronin, and recommended them for election to membership.

Dr. BEDELL moved that the Secretary be directed to cast one ballot for Dr. Doescher and for Dr. Cronin. Motion carried. The Secretary cast the ballots and Dr. Doescher and Dr. Cronin were declared elected.

Dr. BEDELL moved that the Society send to the ALBANY ANNALS the usual stipend of $50 for printing the minutes of the Society, and $8 for subscription for four copies of the ANNALS. Seconded by Dr. Ward. Carried.

*Scientific program:*

Dr. EDGAR A. VANDER VEER read a paper "My Clinical Experience with Gastro-enterostomy, with a Report of Cases."

The paper was discussed by Drs. L. H. NEUMAN, ANDREW MACFARLANE and Dr. VANDER VEER.

Dr. PEASE, in introducing Dr. Fred. E. Lettice, of Sing Sing, N. Y., Resident Surgeon, Sing Sing Prison, expressed the pleasure of the Society in having him present his paper.

Dr. LETTICE read a paper "Spinal Anesthesia; a Report of One Hundred Cases." The paper was discussed by Drs. E. A. VANDER VEER, BEILBY, WARD, LE BRUN, and LETTICE.

The paper of Dr. LIPES, "A Case of Hirschsprung's Disease," was postponed on account of the absence of Dr. Lipes.

On motion of Dr. JENKINS the Society adjourned at 9:55 P. M.

WILLIS G. MACDONALD,
*President.*

JOSEPH A. LANAHAN,
*Secretary.*

A regular meeting of the Medical Society of County of Albany was held in the Albany Medical College Wednesday evening, March 17, 1909. The meeting was called to order by President MacDonald. Members present: Drs. Archambault, J. L., Archambault, L., Boyd, Bailey, Babcock, Curtis, Corning, Cronin, George, W. H., Hacker, Jenkins, MacFarlane, Moore, C. H., Pease, Sampson, Traver, Vander Veer, E. A., Wiltse. The Secretary being absent, Dr. Cronin was appointed Secretary *pro tem.*

The motion was made and carried that reading of minutes be deferred until next regular meeting.

No reports, election of members, unfinished business, or new business.

A paper on "Etiology and Symptomatology of Retro Displacements of Uterus," was read by Dr. John A. Sampson; "Treatment of Retro Displacements of Uterus," by Dr. John B. Harvie, of Troy, N. Y.; "The Effects of Treatment on Subsequent Pregnancies," by Dr. James P. Boyd.

*Discussion of papers:*

Dr. E. A. Vander Veer spoke of the advantages of ventral suspension over the extra peritoneal operation; also spoke of the necessity of opening up the peritoneal cavity and seeing the condition with which you had to deal.

Dr. J. L. Archambault discussed the various operations, citing their advantages and disadvantages; also their relation to future pregnancies. He spoke of a case on which he operated and found myema undergoing tuberculous degeneration.

Dr. Hacker spoke of the disadvantages of the use of the pessary.

The discussion was closed by Dr. Sampson. He discussed the value of the pessary in a condition when ligaments are relaxed following pregnancy, citing cures in two cases.

Dr. Harvie thought that the above cases might have recovered even though the pessary was not used. He also spoke of the advantages of extra peritoneal operation over ventral fixation, and considered it unnecessary to open abdomen in order to make diagnosis.

Dr. MacFarlane moved that the society extend a vote of thanks to Dr. Harvie for his excellent paper. Carried.

President MacDonald spoke briefly of the necessity of members to attend the society meetings.

Motion made and carried that the meeting be adjourned.

Willis G. MacDonald,
*President.*

M. D. Cronin,
*Secretary pro. tem.*

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A regular meeting of the Medical Society of the County of Albany was held at the Albany Medical College Wednesday evening, April 14, 1909. In the absence of the President and Vice-President, Dr. W. H. Murray called the meeting to order at 8:45 p. m. The following members were present: Drs. Ward, Blair, Vander Veer, A., Vander Veer, E. A., Neuman, Hacker, C. G., Traver, Papen, Sr., Papen, Jr., Moore, C. H., Lomax,

McHarg, Ryan, Lanahan, Murray, McKenna, Archambault, J. L., Mac Farlane, Herrick, Cronin, Corning, Bedell, A. J., Rooney, Draper, Lawrence, Babcock, Van Slyke, MacDonald, O'Leary, Jr., Cook, Pease, Douglas, Classen, Griffen, Curtis, Giffen, Conway (37).

Minutes of previous meetings adopted and ordered printed.

The President arriving, Dr. Murray relinquished to him the chair.

No reports were received, no business was transacted.

*Scientific program:*

Dr. Erastus Corning read a paper on "The Percutaneous Tuberculin Reaction of Moro."

The paper was discussed by Drs. A. Vander Veer, Blair and Corning.

Dr. Vander Veer: I was interested in the paper of Dr. Corning as it presented many excellent points. Much work has been done in the reactions at the Sanitarium at Montevideo, outside of Pasadena, where I visited a short time ago, and there they were looked on with favor, being used with great success in incipient cases.

Dr. Blair reported two cases showing peculiar infectiousness of tuberculosis. One was a case of bronchitis in which the sputum had been repeatedly examined but showed no bacilli. He went west on a trip and died of tuberculosis, probably contracted in sleeping cars. The other was a man of thirty-five, examined for life insurance. Three brothers and one sister died of tuberculosis. Another brother contracted the disease in New York. The case was presented to a number of examiners and the policy was issued. The man did not live with the rest of the family.

Dr. Corning, in closing, said that one of his cases was the last of a family of ten, all of whom had died of tuberculosis.

Dr. James F. Rooney read a paper on "The Early Diagnosis of Cancer of the Stomach." The paper was discussed by Drs. Neuman, Ward, MacFarlane, A. Vander Veer and Rooney.

Dr. Neuman: In a paper of this kind individual symptoms of certain individuals cannot be considered. At times there is a reduction of hydrochloric acid. When an ulcer has a carcinoma grafted on it there is an increase in hydrochloric acid. Many things influence the increase of hydrochloric acid. Raising of blood tension increases secretion. Blood in stools is of value. Pain is not always present, quoting five cases. Symptoms expected are not always present. No specific signs until we know the exact pathology of this condition.

Dr. Ward: The most of the pain as confirmed by autopsy indicates the location of the cancer. If the orifices are involved there is pain. Quoted a case where diagnosis was in doubt, and autopsy showed neither orifice involved.

Dr. A. Vander Veer: The paper was of great interest to him, especially as indicating when cases might be brought to the surgeons. He regrets to say the majority of cases seen in consultation have tumor present, and then it is rather late for surgery. If seen before glandular infiltration operation is of great service to the patient. Quoted several cases operated on by him eight years ago, and still well. Early operation

relieves responsibility of the family physician, and there is no great mortality from an exploratory incision even if tumor is not found.

Dr. Rooney, in closing, said: There were no specific symptoms. As Dr. MacFarlane has said, we may have the same symptoms with specific differences. They are not pathognomonic symptoms, but a symptom complex. As Dr. Neuman says, hydrochloric acid is higher in ulcer with cancer. No harm in exploratory incision and extirpation. As to blood in stools, oxidation reactions are caused by other things than blood. Thanked society and those who took part in discussion.

Dr. Samuel B. Ward read a paper on "Myocarditis and Its Treatment." The paper was discussed by Drs. MacFarlane, Hacker, Cook and Ward.

Dr. MacFarlane substantiates experiences of Dr. Ward. Condition is secondary to other conditions and so is difficult of diagnosis when present. Uses and teaches the use of heroic doses of nitroglycerin, in one-fiftieth solution every two or three minutes. In edema he has used large doses with no bad effects, and has seen no bad effects from its use.

Dr. Hacker spoke of two cases of edema in which nitroglycerin was not well borne, both women. In one, a woman about sixty, one-hundredth grain gave great headache. In arteriosclerosis especially nitroglycerin was not well stood. Uses instead atropine and morphine.

Dr. Cook said it was a treat to hear a paper on a general subject. He had seen terrible cases of edema relieved by nitroglycerin. Quoted case of unlimited use of the remedy, so much that he doubted the freshness of the drug until he tried it himself. Sometimes he uses amyl nitrite.

Dr. Ward, in closing: Dr. Hacker's cases must have been exceptional. Young persons with arteriosclerosis react quicker than those without it. As to tolerance, quoted case of physician who had habit of taking four grains daily. He stopped its use and got along for five or six days and then when he took the first dose again his face flushed and he had all the usual effects.

Dr. L. H. Neuman read a paper on "Intestinal Autointoxication." The paper was discussed by Drs. Cook, MacDonald and Neuman.

Dr. Cook said specialists were apt to mistake in diagnosis as well as general practitioners. He said too much was expected to be found in the examination of the urine, quoting a case to explain his contention.

Dr. MacDonald said a method of treatment of this condition as simple and as efficient as the use of nitroglycerin in edema was the use of calomel and rhubarb.

Dr. Neuman, in closing, spoke of the use of simple intestinal antiseptics.

On motion of Dr. A. Vander Veer the meeting adjourned at 10:45 p. m.

Willis G. MacDonald,
*President.*

Joseph A. Lanahan,
*Secretary.*

The annual meeting of the Medical Society of the County of Albany was held at the Albany Medical College Wednesday evening, May 12, 1909. Dr. MacDonald presided. The meeting was called to order at 8:30 P. M. The following members were present: Drs. Archambault, L., Bedell, A. J., Blair, Blatner, Cook, Cronin, Curtis, Douglas, Draper, Finch, Griffen, Guttman, Hacker, C. G., Harrig, Herrick, Hinman, Jenkins, Keens, Laird, Lanahan, Lawrence, Lawyer, Lempe, Lipes, Lomax, MacDonald, McHarg, Mereness, Moore, C. H., Murray, O'Leary, Jr., Papen, Sr., Papen, Jr., Pease, Reynolds, Rulison, H., Rulison, L. B., Stevenson, Travers, Vander Veer, A., Vander Veer, J. N. (41).

Minutes of the last meeting were read and ordered printed.

Comitia Minora reported that the required examination of the County Clerk's record had been made and the list of registered physicians was in the hands of the Secretary.

Dr. D. V. O'Leary, Jr., Treasurer, presented the following report:

| | |
|---|---|
| On hand May 19, 1908 | $86 29 |
| Received during 1908 | 490 00 |
| Total collections for 1908 | $576 29 |
| Total expenditures, 1908 | 472 27 |
| Balance, January, 1909 | $104 02 |
| Received during 1909, to date | 458 00 |
| 1909: Total collections to date | $562 02 |
| 1909: Total expenditures to date | 394 00 |
| On hand, May 12, 1909 | $168 02 |

The Treasurer changed the name of the account in the bank from Albany County Medical Society to Medical Society of the County of Albany.

Daniel V. O'Leary, Jr.,
*Treasurer.*

Dr. Bedell moved report be accepted and committee appointed to audit the Treasurer's books. Motion carried and President appointed Drs. Bedell, Blatner and Lawyer such committee.

Report of the Secretary read and accepted.

Committee on Public Health and Committee on Legislation made no report.

Communication from the State Secretary was read as follows:

Medical Society of the State of New York.

Dear Doctor.—The following resolutions were passed at the last meeting of the Medical Society of the State of New York:

In the Council:

"Moved, seconded and carried that the Secretary be requested to call the attention of County Secretaries to Chapter IX, Section 8, of the By-Laws of the State Society and request that in the future all amendments

or changes in Constitution and By-Laws be submitted to the Council before being acted upon."

In the House of Delegates:

"That the House of Delegates request the County Societies to repeal the following by-law, Chapter II, Section 8:

"When a member removes from the State of New York permanently he shall cease to be a member of the Society and shall forfeit all right and title to any share in the privileges and property of the Society, the District Branch, and the Medical Society of the State of New York."

Kindly bring these matters to the attention of your society and oblige.

Yours very truly,

WISNER R. TOWNSEND,
*Secretary.*

Dr. J. A. LANAHAN, *Secretary, Medical Society of the County of Albany, 99 Eagle street, Albany, N. Y.:*

Moved and seconded that the recommendation of the Council be referred to the Comitia Minora. Carried.

Moved and seconded that the recommendation of the House of Delegates be adopted. Carried.

Vice-President Dr. PEASE was called to the chair, and the President, Dr. Willis G. MacDonald, delivered the President's address.

Dr. CURTIS said: I have always listened with a great deal of pleasure and delight to everything Dr. MacDonald presents. It is a good thing to have a restatement of the questions that affect us individually and as a profession and especially as an organized profession. County societies have been doing better work in the past two or three years, and it is a great satisfaction to see ours so well carried on. It makes less difference what the State Society or the American Medical Association does than what the County Society is doing, as much as home life is of greater consequence to us than city or state affairs. There is greater zeal for carrying out of professional purpose, when the County Society is strong, and we may well listen to the wisdom of the President and be thankful for the good work he has brought the Society into during the past year. Dr. Curtis moved that the thanks of the Society be extended to the President for his most interesting address, and that a copy of the same be requested for publication. Carried.

Dr. PEASE, in relinquishing the chair, complimented the President and society on the good work done and added his appreciation of the address of the President.

*Election of officers.*

Dr. LEMPE nominated Dr. Andrew MacFarlane for the office of President. Dr. BEDELL seconded the motion. There being no other nominations Dr. BLATNER moved that the Secretary be directed to cast one vote for Dr. MacFarlane. The motion was carried, the Secretary cast the ballot and Dr. MacFarlane was declared elected President.

For Vice-President, Dr. MERENESS nominated Dr. Alvah H. Traver. There being no other nominations Dr. CURTIS moved that the Secretary

cast one ballot for Dr. Traver. Motion carried, the Secretary cast the ballot and Dr. Traver was declared elected Vice-President.

Dr. Lempe nominated Dr. J. A. Lanahan for Secretary. Dr. Curtis seconded the nomination. Dr. Mereness moved that the Vice-President-elect cast one ballot for Dr. Lanahan. Motion carried, Dr. Traver cast the ballot and Dr. Lanahan was declared elected Secretary.

Dr. Bedell nominated Dr. D. V. O'Leary, Jr., for Treasurer. Dr. Traver seconded the motion. Dr. Jenkins moved the Secretary cast one ballot for Dr. O'Leary. Motion carried, the ballot was cast and Dr. O'Leary was declared elected Treasurer.

Nominations for members of the Board of Censors were then called for, in place of Drs. Lempe, George, Curtis, MacFarlane and Rulison. Dr. Bedell nominated Dr. T. W. Jenkins. Dr. Stevenson nominated Dr. W. H. Murray. Dr. Jenkins nominated Dr. J. H. Blatner. Dr. Blair nominated Dr. F. C. Curtis. Dr. Curtis withdrew and nominated Dr. J. H. Mitchell of Cohoes, and Dr. Daniel C. Case of Slingerlands.

Dr. Cook moved that the Secretary be directed to cast one ballot for the five nominees. Motion carried, the Secretary cast the ballot, and Drs. Jenkins, Blatner, Murray, Mitchell and Case were declared elected members of the Board of Censors.

Nominations for Delegates to the Third District Branch were called for, in place of Drs. MacFarlane and Mitchell. Dr. Curtis nominated Dr. D. C. Cook. Dr. Bedell nominated Dr. G. G. Lempe. Dr. Griffin nominated Dr. G. W. Papen, Sr. Dr. Cook withdrew and nominated Dr. Mereness. Dr. Mereness withdrew and seconded the nomination of Dr. Papen. Dr. Lipes moved that the Secretary cast one ballot for Drs. Lempe and Papen. Motion carried, Secretary cast the ballot and Drs. Lempe and Papen were declared elected Delegates to the Third District Branch.

Dr. Bedell, for the auditing committee, reported that they had examined the books of the Treasurer and found them correct. There being no further business, the meeting adjourned at 9:35 p. m.

Willis G. MacDonald,
*President.*

Joseph A. Lanahan,
*Secretary.*

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## Medical Society of the County of Columbia

The semi-annual meeting was held at Chatham, N. Y., on Tuesday, May 11th, 1909.

The discussion of the meeting was included in a symposium on syphilis. This was opened with a paper on the Etiology of Syphilis, by Dr. T. Schaepkens Van Riempst, who illustrated his remarks by a pathological demonstration with special reference to microscopic findings.

The Prognosis and Treatment were presented by Dr. Louis Van Hoesen of Hudson, N. Y.

The general discussion was participated in by Drs. Z. F. Dunning and I. C. Washburn.

A committee was appointed to draft resolutions of condolence on the death of Drs. John T. Wheeler and Frank Kunker.

The society announces the annual meeting to be held in Hudson on October 5th next. At this meeting Dr. Bruce, superintendent of the New York State Training School for Girls will give an illustrated lecture on "The Juvenile Delinquent." After this lecture it is planned to inspect the buildings and the methods employed in the institution.

The scientific program will be carried out in the new Court House in Hudson, at 2 o'clock, and a special memorial session has been appointed for 5 o'clock of the same day to pay a fitting tribute to the memory of the late Dr. John T. Wheeler, first president of the society. The present officers of the society are as follows: President, F. C. Maxon, Chatham, N. Y.; Vice-President, Louis Van Hoesen, Hudson, N. Y.; Secretary and Treasurer, T. Floyd Woodworth, Kinderhook, N. Y.

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## Medical News

Edited by Arthur J. Bedell, M. D.

The Albany Guild for the Care of the Sick—Department of Visiting Nursing.—Statistics for April, 1909. Number of new cases, 149; *classified as follows:* Dispensary patients receiving home care, 18; district cases reported by health physicians, 8; charity cases reported by other physicians. 75; moderate income patients, 48; total number of cases under nursing care during the month, 274. *Classification of diseases for the new cases:* Medical, 54; surgical, 14; gynecological, 0; obstetrical under professional care, mothers, 37; infants, 34; eye and ear, 1; skin, 5; throat and nose. 0; infectious diseases in the medical list, 14; removed to hospital, 4; deaths, 7.

*Special Obstetrical Department.*—Number of obstetricians in charge of cases, 1; medical students in attendance, 2; guild nurses in attendance, 5; patients, 2; visits by head obstetrician, 0; visits by attending obstetricians, 1; visits by students, 15; visits by nurses. 23; total number of visits for this department, 29.

*Visits of Guild Nurses* (all departments).—Number of visits with nursing treatment, 1,313; for professional supervision of convalescents, 256; total number of visits, 1,569; cases reported to the Guild by three health physicians and forty-one other physicians; graduate nurses, seven. and pupil nurses nine on duty.

*Report of Nurse's Work at Dispensary for April,* 1909.—Number of new patients treated, 112; number of old patients treated, 504-616; number of clinics held, 92; *divided as follows:* Medical, 13; children's, 13; dental. 4; stomach, 4; surgical, 13; gynecological, 9; nose and throat, 9; skin, 9; eye and ear, 8; lung, 12.

Medical Society of the County of Schenectady.—The regular meeting of the Medical Society of the County of Schenectady was held Wed-

nesday evening, May 19, 1909, at 8.30 p. m. Dr. C. F. Clowe spoke on "Mind and Heredity," and Dr. E. MacD. Stanton, on "Blood-Vessel Surgery."

Army Medical Corps Examinations.—The Surgeon-General of the Army announces that preliminary examinations for appointment of first lieutenants in the Medical Corps of the Army will be held on July 12, 1909, at points to be hereafter designated.

Full information concerning the examination can be procured upon application to the "Surgeon-General, U. S. Army, Washington, D. C." The essential requirements to securing an invitation are that the applicant shall be a citizen of the United States shall be *between* 22 and 30 years of age, a graduate of a medical school legally authorized to confer the degree of doctor of medicine. shall be of good moral character and habits, and shall have had at least one year's hospital training or its equivalent in practice. The examination will be held concurrently throughout the country at points where boards can be convened. Due consideration will be given to localities from which applications are received, in order to lessen the traveling expenses of applicants as much as possible.

The examination in subjects of general education (mathematics, geography, history, general literature, and latin) may be omitted in the cases of applicants holding diplomas from reputable literary or scientific colleges, normal schools or high schools, or graduates of medical schools which require an entrance examination satisfactory to the faculty of the Army Medical School.

The recent Act of Congress giving an increase in the Medical Corps, together with a larger regular Army, will permit of a great variety of medical and surgical work besides affording opportunities for those specially qualified to engage in special work, such as surgery, sanitation, chemistry, pathology, microscopy and bacteriology.

All appointments are made with the rank of first lieutenant ($2,000 per annum). At the end of three years the officer is promoted to captain at $2,400. which, at the end of five years' service is increased to $2,640, etc. In addition to this, officers are furnished with quarters, medical attendance and medicines for themselves and their families, the privileges of the commissary, mileage at the rate of seven (7) cents per mile when traveling under orders, and allowed one month's leave per year with full pay, which may be allowed to accumulate to a maximum of four months; also the privilege of retirement. These allowances are estimated to add from $1,200 to $1,600 to the yearly compensation in the grades of first lieutenant and captain.

In order to perfect all necessary arrangements for the examination, applications must be complete and in possession of The Adjutant-General of the Army on or before June 10, 1909. Early attention is therefore enjoined upon all intending applicants, and free correspondence with the Surgeon-General's Office is invited on any subject connected with the examination. There are at present 103 vacancies in the Medical Corps of the Army.

The Sixteenth International Medical Congress will be held at Budapest from August 29th to September 4th. 1909. The Congress has been divided into twenty-one sections and the preliminary notices and program contains much of general interest and of decided scientific value. Dr. John H. Musser of Philadelphia is chairman of the United States Committee, of which Dr. Albert Vander Veer is a member.

The Journal of Pharmacology and Experimental Therapeutics.—This new journal has been announced and will have as its aim the publication of papers bearing on these two subjects. At least six numbers of the journal will be issued yearly and will constitute a volume of not less than six hundred or more than six hundred and fifty pages. The price of the journal will be $5.00 per volume, sent postpaid to subscribers in all countries. Contributors will receive one hundred copies of their papers free of charge and additional copies will be furnished at cost. The first number of the journal will be issued at an early date, not later than May 1, 1909.

Personals.—Dr. E. J. Bedell (A. M. C. '93) of Delmar, N. Y., has resigned as supervisor of Albany County and has been appointed County Superintendent of Highways.

—Dr. J. B. Neary (A. M. C. '01) of Troy, N. Y., has been appointed attending surgeon at the new government hospital at Panama.

—Dr. G. S. Lape (A. M. C. '04) is located at Binghamton, N. Y.

—Dr. W. H. Conger, Jr. (A. M. C. '08) has resigned from the house staff of Ellis Hospital, Schenectady, N. Y., and taken up active practice in North Chatham, N. Y.

—Dr. S. J. H. Reed (A. M. C. '08) has resigned from the Physicians Hospital of Schenectady to become one of the resident physicians of the Hudson River State Hospital, Poughkeepsie, N. Y.

—Dr. S. P. Brush (A. M. C. '08) has left the Albany Hospital to practice in North Creek, N. Y.

—Dr. Henry Hun, of Albany, N. Y., was elected president of the Association of American Physicians at its last meeting held in Washington, D. C., May 11 and 12, 1909.

Engagement.—Mr. and Mrs. Sidney T. Pendell announce the engagement of their daughter, Miss Emma G. Pendell, to Dr. T. F. Doescher (A. M. C. '06) of Albany, N. Y.

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Died.—Dr. Lemuel Cross (A. M. C. '56) died at his home in Cobleskill, N. Y., April 26, 1909. Dr. Cross was well known throughout the county and among his many students was Dr. W. G. Macdonald, of Albany, N. Y.

—Dr. Alvarado Middleditch (A. M. C. '56) died at Pasadena, Cal., April 26, 1909, aged 80. ,

—Dr. James Warren Freeman (A. M. C., '64) died at East Saginaw, Mich., May 3, 1909, aged 80.

—Dr. Charles E. Witbeck (A. M. C. '66) died at his home in Cohoes, N. Y., on May 13, 1909, as the result of Bright's disease.

—Dr. Edward J. Dickinson (A. M. C. '66) died suddenly at his home at Corydon, Ia., April 16, 1909, aged 71.

—Dr. George A. Cox (A. M. C. '68) died at his home, 80 S. Swan Street, Albany, N. Y., May 21, 1909, after a short illness of angina pectoris, aged 63.

—Dr. H. L. Wood (A. M. C. '99) died at Groton, Conn., May, 1909.

## In Memoriam

### Henry Camp Potter, M. D.

Dr. Henry Camp Potter, a prominent citizen of Saginaw, Michigan, died at San Ysidro ranch, near Santa Barbara, California, April 3, 1909, aged 86 years. Dr. Potter prepared in 1908, the following autobiography:

Henry Camp Potter was born in Utica, New York, July 14, 1823.

His grandfather, Stephen Potter, was captain in the Army of the Revolution and an original member of the Society of the Cincinnati, created by Washington at the close of the war.

His maternal grandfather, Hon. Talcott Camp, was the first president of the village of Utica, New York, and held that office seven years. He was a Revolutionary officer and an officer in the war of 1812.

H. C. Potter graduated at Union college in 1841 and held the diplomas of A.B. and A.M., was a member of the Sigma Phi and Phi Beta Kappa.

He graduated as M.D. in 1844 at the Albany Medical College and practiced in the city of Utica for six years, during most of which time he was city physician. He was commissioned by Governor William C. Bouck, September 17, 1844, as surgeon in the 134th Regiment of Infantry of the State of New York, of which Richard W. Sherman, father of Congressman James S. Sherman of New York, was Colonel.

He married Miss Sarah Farwell in 1847. She died in May, 1906, after a happy period of nearly fifty-nine years. Their children were: Helen, who died in 1864; James Farwell, who died in 1879; William F., who was general superintendent of the Flint and Pere Marquette Railway, and later superintendent and president of the Long Island Railroad, who died in 1905; and Henry C. Potter, Jr., who was treasurer of the Flint and Pere Marquette Railroad and comptroller of the Pere Marquette system, and later vice-president of the People's State Bank of Detroit, who died January 4, 1909.

In 1852 Dr. Potter entered upon the construction of public works in company with his father-in-law, Samuel Farwell, of Utica, New York, who had built many important works, among them portions of the Erie Canal, the Erie Railroad and about one-half of the Great Western Railroad (now Grand Trunk) from Suspension Bridge to Detroit.

This connection brought him to Saginaw in 1859 for the building of the Flint and Pere Marquette Railroad, and he was on that railroad until

1891 as treasurer, general manager and vice-president, during construction of the entire road.

He was superintendent of the first salt company in the valley, that developed the business and made the first salt.

He was president of the Merchants' National Bank of East Saginaw until it was sold at the expiration of its charter in 1883 to the Home National Bank, of which he became a director.

He was president of the Savings Bank of East Saginaw from its organization in 1872 to its sale in 1907, to the Bank of Saginaw, of which latter bank he was vice-president.

He was president of the Michigan State Bankers' Association in 1890.

He was a member of the Society of the Cincinnati of the State of Connecticut by right of inheritance from his grandfather, Captain Stephen Potter.

He held no political position except presidential elector at the time of McKinley's election, when he was chosen president of the electoral college at Lansing.

In commenting upon Dr. Potter's death the *Saginaw Courier-Herald* states that for fifty years he has been a leading citizen.

No resident of Saginaw has ever enjoyed more loyal friendship and loving and sympathetic associates than this venerable citizen, who engaged in the work of building Saginaw more than half a century back. and has always been one of its most valuable and energetic citizens. His occupations during this period carried him into the business of railroad building, manufacturing, and the world of finance, and in each he attained a distinguished place, because of his extraordinary business ability and deep sense of personal obligation and righteous dealing.

In his later years many misfortunes have fallen to his lot, the death of all the members of his family and wife, burdening his aging days with the heaviest of sorrows. In 1905 he was crushed by the ultimately demise of his brilliant son, William F. Potter, then president of the Long Island Railroad, and the doctor's successor in the railroad work. This was almost an unbearable blow for the devoted and fond parent. Again this year he suffered in the loss of the last child of his union and the sad circumstances attending the death of H. C. Potter, Jr., undoubtedly did much to hasten the end.

Dr. Potter's career was so closely linked with the life of Saginaw that it contributes many chapters to its affairs and growth. At the time of the semi-centennial celebration, which was also the fiftieth anniversary of the commencement of the building of the old Flint and Pere Marquette Railroad, the doctor communicated for publication a number of facts of interest concerning his early history. It was then just forty-eight years since that four sturdy, ambitious and honest men came from the east to Michigan, intent upon blazing their way through the hidden wilderness of this state and to build a railroad. They were Jesse Hoyt of New York, Dr. Potter, his father-in-law, Samuel B. Farwell of Utica, New York, and Captain E. B. Ward, later of Wyandotte. So well was their work accomplished that for thirty years the road as then planned

and builded retained its original identity. Then in the rapid changes of modern financial manipulation the road passed into a new control and the last of the original builders retired, Dr. Potter being the only one still spared to this life to take a justifiable pride in the measure of success that had crowned their efforts.

They were a notable quartette of pioneers, honest and just, keen and intelligent, ambitious business men, and representatives of those early days whose every word and act was one of honor and inspired confidence.

To Dr. Potter was given the task of carrying out the ideas of these remarkable men and to him is due the major portion of the credit of the undertaking. For thirty-two years he was its active head and each year under his management the line made improvements and advances so that within a short period of time the thirty miles logging road became one of the most formidable of the state's transportation roads.

The regime of the builders came to a partial end in 1882, when Mr. Hoyt died. Dr. Potter, however, remained as general manager and vice-president and it was not until the early nineties that he gave up all active direction of the property.

A notable record was made during these years, one which still holds a most conspicuous place in the annals of railroad operation. During these thirty years and more not a single passenger lost his life while traveling upon the road. The early work of building was so well and ably done that even the improvements of later days have been found of little value in making general changes in the route or construction.

In addition to his activities in railroad affairs Dr. Potter was also identified in a very intimate way with the banking affairs of Saginaw, almost from its beginning. First he was president of the Commercial National Bank of East Saginaw, a responsibility accepted at the urgent request of Jesse Hoyt, and he remained in this capacity until the Home National Bank absorbed it in 1883. He was then elected a director of this bank.

Dr. Potter was a moving spirit in the organization of the Savings Bank of East Saginaw in 1872 and was its president from that date until 1907, when it was sold to the Bank of Saginaw, of which he has since been a vice-president.

He was one of the original incorporators of the Saginaw board of trade, signing the first articles of association in 1862.

By the terms of Jesse Hoyt's will he was named as one of the five original trustees for Hoyt library and was the first president of that board. He took an active interest in its affairs up to the time of his death and his early efforts to properly establish this institution have been largely the cause of its satisfactory existence since.

Dr. Potter's was a personality rare and beautiful. He was a brave and tender man, whose heart was filled with love and sympathy for his fellow-kind, and whose greatest happiness was found in doing good. His personal traits were towards deep study and he was a most discriminating student of literature, the arts, nature and music. In these he found the life and color which illumined his days and brought him to a period of life allowed to but a comparative few. His sense of humor was most keen and deep. His greatest sorrows have been the deaths in the family.

Dr. Potter was one of the most entertaining and charming of conversationalists. In his long life he had met and known personally very many of the great men of the country and his reminiscences were always delightful and illuminating. Among the men he had known intimately and worked with were Roscoe Conkling, Thurlow Weed, Horace Greeley, James G. Blaine, John G. Whittier, William H. Seward, Zachariah Chandler, James F. Joy, and many others who have passed away. He was one of the few remaining in this generation who had heard Daniel Webster speak.

For more than a year in his young manhood he edited and managed a daily newspaper at Utica, N. Y., during an exciting political period, and thus became acquainted with a large number of the men, especially of the east, who were leaders in statecraft.

The death of this venerable gentleman comes as a personal loss to many hundreds of residents of Saginaw, who have enjoyed his friendship for many years, as well as to scores and scores about the country, as his home welcome to them has always been most hearty and cordial and sincere and the gatherings at the Potter residence have come to be regarded as unusual events by these friends for many years.

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## Henry King McLean, M. D.

Dr. Henry King McLean died at his home in Hoosick Falls, N. Y., on April 6, 1909, after an illness of several months, having been confined to his bed for a month prior to his death. He was the son of Thomas K. and Mary P. McLean and was born at Jackson, eighty-five years ago. His father was of Scotch descent, and his mother was of Dutch extraction. After graduating from the Washington County Academy, at Greenwich, about the year 1847, he entered the Albany Medical College, graduating from that institution in 1850. For forty years Dr. McLean enjoyed a large practice at Hoosick Falls,, and then retired, owing to ill health. He was a member of the Rensselaer County Medical Association. For thirty-five years he was a member of the Methodist church, and for several years a member of its official board, and for thirty-one years he was the secretary and treasurer of the Maple Grove Cemetery Association. One of his most valuable services to the village was his aid in the formation of the present school district.

Dr. McLean married Elizabeth Armstrong, of Hoosick, in 1850. She died in 1871. About a year after her death, he married Amy S. Dillingham, of Cambridge, who died last October. He is survived by his son, Edward K. McLean, and two daughters, Mrs. Oscar Moulton and Miss Mary McLean, all of this village; another daughter, Mrs. H. W. Shaw, of Brattleboro, Vt.; a brother, Rev. John K. McLean, of Berkeley, Cal.

# Current Medical Literature

## REVIEWS AND NOTICES OF BOOKS

*Pathogenic Micro-organisms, including Bacteria and Protozoa.* A Practical Manual for Students, Physicians and Health Officers. By WILLIAM H. PARK, M. D., Professor of Bacteriology and Hygiene in the University and Bellevue Hospital Medical College, New York. New (third) edition, thoroughly revised and much enlarged. Octavo, 648 pages, with 176 illustrations and 5 full-page plates. Cloth, $3.75 net. Lea & Febiger, Philadelphia and New York, 1908.

This edition is a decided improvement upon the previous editions and because of the chapters devoted to the protozoa has become one of the most useful text-books for students in the ordinary Medical School course in bacteriology. Its completeness likewise makes it one of the best elementary reference books for physicians and health officers.

The pathogenic micro-organisms are treated rather more exhaustively than in most text-books and in some instances with too great detail for teaching purposes. This is especially apparent where the authors deal with subjects that have been investigated in their laboratory, notably diphtheria, rabies and the colon-typhoid group of bacteria. The chapter on the pathogenic fungi and yeasts is the poorest in the book and these subjects are sketchily treated. Still most text-books on bacteriology do not even present these subjects.

A few subjects are inadequately treated, for instance the work of Bordet and Gengow on the bacillus of whooping-cough, has not been mentioned, this is surprising in view of the completeness of the book. The illustrations are a trifle better than those in most American text-books of bacteriology.

S. B. WOLBACH.

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*Pathological Technique.* Including Directions for the Performance of Autopsies and for Clinical Diagnosis by Laboratory Methods. By F. B. MALLORY, M. D., Associate Professor of Pathology, Harvard Medical School; and J. H. WRIGHT, M. D., Director of the Pathological Laboratory, Massachusetts General Hospital. Fourth Revised Edition. Octavo of 480 pages, illustrated. Philadelphia and London. W. B. Saunders Company, 1908. Cloth, $3.00 net.

This book, often affectionately called "the bible" by the younger laboratory workers, remains the best work of its kind in English. Its usefulness is testified to by the presence of worn copies in nearly every pathological laboratory in this country. Its contents are comprehensive and can be absolutely relied upon for accuracy and practicability.

No very important changes have been made in the fourth edition. As stated in the preface several errors have been corrected. "A few new methods have been omitted and a number of new ones which have stood the test of time and trial added." "In part II are inserted Zinsser's anaerobic method for plate cultures and three new methods for differen-

tiation and cultivation of the typhoid bacillus, the ox-bile method, the medium of Endo and the malachite green medium."

The paragraphs on the organisms of actinomycosis have been entirely re-written—"In part III the following additions are also found—Weigert's iron haematoxylin stain for nuclei, improvements in the methods for staining fibroglia, myoglia and neuroglia fibrils; Wright's method for differential staining of blood platelets and the giant cells of the bone marrow; Best's improved stain for glycogen, von Kossa's silver method for demonstrating lime salts, staining methods for treponema pallida and Sir A. E. Wright's method for preparing bacterial vaccines."

S. B. WOLBACH.

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*The Principles of Pathology.* Volume I, General Pathology. By J. GEORGE ADAMI, M. A., M. D., LL.D., F. R. S., Professor of Pathology in McGill University, Montreal. Octavo, 948 pages, with 322 engravings and 16 plates. Cloth, $6.00 net. Lea & Febiger, Publishers, Philadelphia and New York, 1908.

This book has been highly appraised by reviewers for many leading American medical publications. Several of these reviews have been very thorough and the general tone of them all has been on the whole distinctly laudatory. Considered as a text-book for students it has several demerits, chief of which are its size and the exhaustive presentation of some subjects without arriving at conclusions sufficiently definite for the student mind. As a book of reference for medical students and advanced students in pathology it is the best work of any attempting to cover a similar field.

The author has endeavored to cover the field of pathology from many view points—the physiological, embryological, chemical and even philosophical. He accordingly takes up subjects not generally found in text-books of pathology such as the chemistry of the cell, adaptability, inheritance and abnormalities of development, immunity and, under a variety of headings, a great deal of pathological, physiological and pathological chemistry.

The purpose of the author has been to present the field of pathology from the dynamic rather than from the anatomic view point. He has succeeded so well that the book is consulted profitably by many advanced laboratory workers.

The subject of tumors is presented in a very exhaustive manner and comes after chapters dealing with regeneration, grafting and transplantations, metaplasia and hereteromorphosis. These chapters comprise an admirable introduction and approach to the subject of tumors. The author treats the subject almost entirely from the embryological view point and therefore his classification is involved and burdened with a very cumbersome nomenclature.

When contrasted with the simpler treatment of the same subject by the advocates of the histological classification of tumors, Adami's presentation will not appeal to those teaching pathology to beginners.

The book is already much consulted and prized as a book of reference by students and physicians. As a text-book it will probably prove to be too advanced for the purposes of the average medical school course in pathology.

S. B. WOLBACH.

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*International Clinics.* A Quarterly of Illustrated Clinical Lectures and especially prepared Original Articles on Treatment, Medicine, Surgery and the Specialties, by leading members of the Medical Profession throughout the World. Edited by W. O. LONGCOPE, M. D., Philadelphia, Pa. J. B. Lippincott Company, Philadelphia. Volume IV. Eighteenth Series, 1908.

This volume contains a number of very readable articles among which might be mentioned "Fractures of the Skull. Varieties, symptoms, treatment, the 'free intervals' of hemorrhage, gunshot fractures, illustrative cases," by George Tully Vaughan, M. D.

Dr. Brooke M. Anspach in a well illustrated article advocates the use of buried catgut and a subcuticular stitch in plastic operations on the perineum, claiming better results than from the use of silk-worm gut.

"The Clinical Report of the Work of the Gynecological Ward of the Western General Hospital, Montreal, by A. Lapthorn Smith, M. D., affords interesting reading to those engaged in that line of work.

"The Serum Treatment of Epidemic Cerebro-Spinal Meningitis," by Chas. Hunter Dunn, M. D., giving special reference to the work of Flexner at the Rockefeller Institute for medical research, is by far the most valuable article in the volume. The conclusions drawn by Flexner and Jobling are as follows: "It is our belief that the analyses of histories of cases of epidemic meningitis which have been presented in this article furnish convincing proof that the anti-meningitis serum when used by the subdural method of injection, in suitable doses and at proper intervals, is capable of reducing the period of illness; of preventing, in large measure, the chronic lesions and types of the infection; of bringing about complete restoration of health, in all but a very small number of the recovered, thus lessening the serious, deforming, and permanent consequences of meningitis; and of greatly diminishing the fatalities due to the disease."

H. D. C.

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## LARYNGOLOGY

### Edited by Clement F. Theisen, M. D.

*The Importance of the Roentgen Rays in Rhinology. (Die Bedeutung der Röntgenstrahlen für die Rhinologie.)*

SCHEIER MAX. *Deutsche medicinische Wochenschrift, No.* 41, 1908.

X-Ray examinations of the accessory sinuses of the nose, particularly the frontal sinus, are of great importance, because the presence or absence of the sinus can be determined in this way. It is important to find out

in regard to the size of the frontal sinus, how far upward it extends, how far posteriorly and the thickness of the anterior wall.

All these points can often be determined with the fluoroscope alone. X-Ray examinations were also found useful in determining diseased conditions of the accessory sinuses. Repeated examinations showed that a shadow was caused mainly by a collection of pus.

A direct radioscopy should be made first. This shows the lateral position of not only the frontal sinus, with its depth and the thickness of the anterior wall, but also the size of the maxillary and in the majority of the cases of the sphenoid sinus. In sharply defined pictures, the height of the sphenoid sinus can be determined, and often the semi-circular projection of the sella turciea.

If the patient is then turned around and the sinuses on the both sides compared, collections of pus can frequently be discovered by the difference in the clearness of the sinuses.

In taking radiographs, the lateral position of the head will give the vertical and horizontal dimensions of the sinuses, while an antero-posterior exposure, will show the maxillary, frontal sinuses and ethmoid cells separately and sharply defined, as well as the lateral extension of the frontal sinuses, the position of the septum and the separate frontal and orbital recesses.

The sagittal views are taken with the patient in the recumbent position with the face on the photographic plate. The author prefers the sitting position and has had better results. The patient is seated in a strong fixed chair, and the plate, which is covered with black paper, is placed against the forehead and nose, and held in position by a few turns of a gauze bandage.

In order to obtain a correct idea of pathological conditions of the sinuses, it is important to study normal radiographs of the head.

Pus in a sinus shows very clearly on the picture and even thin fluid contents in the sinuses offer relatively great resistance to the X-Rays. Thick pus will of course give a darker shadow.

Spiess, watching the position of the instrument through the fluoroscope, has advocated opening the frontal sinus through the nose with an electrically driven trephine. The dangers of this method are so obvious that it has not been generally adopted.

In conclusion the author states that skiagraphy as a diagnostic aid has a distinct place in rhinology and will clear up many conditions formerly obscure.

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*Pharyngeal and Laryngeal Syphilis.*

T. Heryng. *Wiener medicinische Wochenschrift, Nos.* 44 *and* 45, 1908.

Syphilitic angina may be recognized by a diffuse (more rarely localized), dark red or bluish-red color of the mucous membrane of the pharynx. The typical patches are seen most frequently on the tonsils, the uvula and the anterior faucial pillars. They at first have the appearance of a thin white deposit which can be better seen with natural light. As the process develops, irregular losses of tissue occur on the pillars and tonsils.

Although these patches have a characteristic appearance, they are sometimes treated for chronic diphtheria and follicular tonsillitis.

A beginning pharyngeal lues is also commonly diagnosed as herpes, stomatitis, and pharyngo-mycosis.

A localization that is not always recognized is the lateral leutic pharyngitis. In the cases observed by the author lateral yellowish-red elevated patches, with swelling of the posterior pillars of the fauces were present. Small nodules develop on these elevated areas, and when they break down, small ulcers, or funnel shaped depressions, from two to three millimeters deep, develop. In from eight to fifteen days these ulcers heal, leaving a smooth cicatricial surface. The pharyngeal syphiloma occurs either on the uvula (at times on its posterior surface), but more frequently on the posterior pharyngeal wall. It is either solitary or multiple. At first this takes the form of an either diffuse or nodular waxy infiltration which soon takes on a yellowish color and results in an ulcer with sharply defined edges.

This ulcerative process often extends to the tonsils and pillars, cicatrizing in one place and breaking out in another and may last for months.

The gumma of the velum results in perforations which sometimes develop very rapidly. A fistula communicating with the naso-pharynx develops in the middle of the infiltrated area. These perforating ulcers occur also on the hard palate, and result in necrosis of the bone. Ulcers involving the uvula often result in adhesions between the soft palate and posterior pharyngeal wall. Ulcerative processes involving the pharynx at times develop very insidiously without producing much pain and difficulty in swallowing.

In considering laryngeal syphilis the author states that the symptoms in the majority of the cases come on with disease of other organs, *i. e.*, skin lesions, and involvement of the bones or glands.

The typical papule, the broad, gray condyloma, develops most frequently on the edge of the epiglottis, then the cords, the posterior wall of the larynx and the aryepiglottic ligaments in the order named.

The location and development of the tertiary infiltrations varies very much. They usually occur in from three to eight years after the primary lesion. Syphilitic corditis is usually unilateral while corditis inferior is more frequently bilateral. Syphilitic laryngeal tumors, whch at times are very large, may simulate malignant growths. The symptoms of secondary syphilis of the larynx are usually hoarseness, with a good deal of irritation and cough. Dangerous symptoms are caused by the breaking down of the specific infiltration and the formation of cicatrices and stenoses.

Considering the differential diagnosis the author states that the greatest difficulty is presented by the combination of syphilis and tuberculosis which frequently simulate carcinoma.

Syphilitic ulcers have certain characteristics, the sharply defined edges, the grayish base, the greatly reddened infiltrated surrounding tissue, which distinguish them from other ulcerative processes. The surest diagnostic evidence is however the rapid improvement when proper treatment is started. Gummata rarely occur in the muscles of the larynx, although cases have been reported by Elsenberg, Türck and Mackenzie.

Syphilitic perichondritis attacks the cricoid cartilage most frequently, more rarely the arytenoid.

The edema that sometimes accompanies perichondritis may cause alarming symptoms and patients with this condition should be carefully watched.

*Treatment.*—The author recommends inunctions and intramuscular injections. In using inunctions he states that the nearer the seat of the lesion the applications can be made the more effective they will be. Intramuscular injections are particularly recommended when a rapid course of the disease is feared, or when dangerous complications such as brain syphilis and destructions of important organs occur.

Schwinner's sozoidol of mercury is the best for intra-muscular injections. The formula is Hydr. sozoidolic, 2.0—4.0, Kal. Iod., 3.0—6.0, Aq. destill. steril., 5—0.

In considering the use of Iodide of Potash he mentions the fact that laryngeal edema may be produced, and for this reason it should be used with the greatest care in patients with kidney or heart trouble.

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*The Local Treatment of Acute Inflammations of the Throat from the Standpoint of Pathology.*

J. L. Goodale. *Boston Medical and Surgical Journal, No.* 26, 1908.

In selecting this subject the author states that he was influenced by the analogy existing between staphylococcus infections of the throat and those of the skin. In both conditions we find the same organisms generating toxin at the point of inoculation, and giving rise to a localized inflammation. We are unable, the author states, to formulate fundamental points of distinction between the local phenomena excited by the staphylococcus, the streptococcus, the pneumococcus, the influenza and the diphtheria bacillus. The clinical differences depend upon the strength of the toxin generated. In his paper the author presents the results of examinations into the effects of local applications upon infectious processes of the tonsils and pharynx. The investigations were made with special reference to the effect of antiseptics upon the course of the clinical phenomena. About forty cases of acute tonsillitis were treated by various antiseptic preparations. Bacteriological examination was made only for the purpose of excluding diphtheria, and it was therefore not possible in most of them to specify whether the organism was a staphylococcus, streptococcus or pneumococcus. It was observed in a number of cases of acute reddening of the pharynx and tonsils, that local applications of various remedies were followed by complete subsidence of the local inflammation. In a further series of cases that were seen early, these applications, particularly the silver salts, were followed by disappearance of the local acute inflammatory manifestations, and the patient appeared for a few hours or a day apparently well, after which time inflammation appeared in a neighboring region, and in several cases which were carefully studied, it seemed that the total duration of the inflammation was more protracted than would have been the case if a simple acute tonsillitis had been allowed to take its natural course. When the local manifestations were more advanced

and accompanied by general symptoms, as fever and prostration, no improvement was noticed from the employment of local antiseptics. In two cases of severe lacunar tonsillitis, the crypts were irrigated several times a day with permanganate of potash and hydrogen peroxide with the object of sterilizing if possible the focus of infection. On each occasion, the immediate effect was to produce pain and swelling in the cervical lymph nodes which lasted for several hours and then subsided. The author summarizes the results as follows:

1. Acute tonsillitis in the early stage before the appearance of white spots or systemic depression, was apparently aborted in some cases by local antiseptics.

2. In some cases acute tonsillitis when seen early was apparently checked by local antiseptics, but inflammation appeared in neighboring organs and seemed to be of protracted duration.

3. The introduction of antiseptics into the crypts was followed by an increase of the local inflammatory process and in some cases by increased systemic absorption.

All the pathogenic bacteria present in the tonsils in acute inflammations of these organs cannot be completely destroyed except perhaps in the earliest stage.

Here there is reason for believing, that if a given pathogenic microorganism has developed in the mouth and about the orifices of the tonsils, its activity may be checked by suitable antiseptic applications if the process has not gone too far. If, however, the multiplication of the organisms has extended beyond a certain point, so that tissue changes are involved, or the system exhibits evidence of toxic absorption, it is improbable that antiseptic applications could destroy completely the organisms present.

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*The Treatment of Acute Catarrhal Conditions of the Middle Ear (Ueber die Behandlung des akuten Mittelohrkatarrhs.)*

WALB. *Deutsche medicinische Wochenschrift, November* 19, 1908.

The author gives the treatment under three headings—acute middle ear catarrh, acute inflammation of the middle ear and acute suppurative middle ear trouble.

*Acute Catarrh.*—The upper portion of the tympanic membrane is reddened but there is no swelling. The position of the hammer and the short process can be clearly determined. The patient complains of slight darting pains in the ear with some deafness. The general condition is not disturbed and as a rule there is no fever. Acute catarrhal conditions of the nose and naso-pharynx are the most important factors etiologically, the middle ear trouble being the result of a direct extension of the inflammatory process through the eustachian tube.

This form of middle ear trouble often gets well without treatment of any kind although this is not always the case. People who are subject to recurring attacks of this kind develop a gradually increasing deafness, with the attending changes in the middle ear. The author believes that

inflation of the middle ear by the Politzer method is the best method of treatment for these cases. This has the effect of restoring the ventilation of the middle ear and removing secretions from the eustachian tube. Wrong methods of treatment are, syringing the ear and dropping solutions into the external canal. The application of cold or heat is usually unnecessary. Laxatives, and the withdrawal of tobacco and alcoholic stimulants, are recommended during the attack.

In considering acute otitis media, the author states that in this form the inflammatory symptoms predominate. It follows an infection, in which the pneumococcus and the streptococcus mycosus are the organisms usually found. The treatment for the first stage should be mainly antiphlogistic. The ice bag and the application of leeches in front of and behind the ear are of the greatest service.

Competent aurists may accomplish the withdrawal of blood by superficial incisions in the congested parts of the drum membrane and superior wall of the canal. This antiphlogistic method of treatment should be continued until the active inflammatory process has subsided. During this time inflations of the middle ear are strictly contra-indicated because they favor the development of complications. After the acute inflammatory process has subsided, inflations with the Politzer bag may be carefully used. When a severe desquamative myringitis develops with a throwing off of masses of epithelial scales, irrigations may have to be used, although here as in the first variety the author does not favor irrigations. When there is danger of perforation paracentesis is indicated.

Later on inflations should be continued until the hearing becomes normal. If improvement has not resulted in eight or ten day and mastoid symptoms develop, a prompt paracentesis should be performed and in many cases this will clear up the mastoid complication. In this form of middle ear trouble also, inflammatory conditions in the nose and naso-pharynx play an important role, and this is particularly the case in children with adenoids and enlarged tonsils. In children who have recurring attacks of acute otitis media, a hyperplasia of the lymphatic ring should always be thought of and proper operative procedures promptly carried out.

In the third form, acute purulent otitis media, a perforation of the tympanic membrane is characteristic. The symptoms in young children, before perforation occurs, are often very alarming (delirium and unconsciousness being sometimes present), and if there is no discharge from the ear, the condition may be mistaken for meningitis. The treatment should be that of an acute infectious process. The patient should be kept in bed and a light diet given. The severe pain in the ear can only be controlled by narcotics although the ice bag does some good. The tympanic membrane should be incised just as soon as bulging can be determined. Spontaneous perforations if not large enough for good drainage should be enlarged, or if they have not occurred in a favorable place incision in other parts of the membrane should be made. For securing good drainage from the middle ear the author recommends the use of an antiseptic bandage. The canal should be first carefully washed out to remove all accumulated secretion, a one per cent. normal salt solution, or a boracic acid solution being used for this purpose. A strip of gauze is then in-

serted in the canal being carried to the drum membrane, sterile gauze placed against the ear, and a gauze bandage carried around the head. The dressings should be changed as often as necessary depending upon the amount of discharge.

If this method is effective and the secretions are not retained in the ear, further irrigations are not necessary.

In concluding his consideration of the treatment, the author condemns the use of the Bier treatment in cases of suppurative otitis media. In twenty cases in which this treatment was used unfavorable results were obtained and a much larger percentage of the cases had to have the mastoid operation. The cases seemed to improve at first, but then there would be a sudden onset of dangerous symptoms which necessitated a prompt mastoid operation. Attention has previously been called to the fact that the Bier stasis masks one of the most important and serious complications of a suppurative middle ear trouble, a brain abscess. It was found that the Bier treatment relieved the severe and constant localized pain which is often the only indication of a brain abscess, concealing this important symptom in some cases until it was too late to operate. The Bier method is absolutely contra-indicated in cases of suppurative otitis media in which mastoid complications are present.

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## TUBERCULOSIS

### Edited by Arthur T. Laird, M. D.

*The Combined Action of the Marine Treatment and the Sodium Chloride Cure in Tuberculosis Adenitis. (De L'Action Combinee du traitement Marin et de la cure chloruree sodique dans la Tuberculose ganglionnaire.)*

RICHARDIERE. *Revue de la Tuberculose,* 1908, *Series, Vol.* 97.

No one disputes the efficacy of the marine treatment for tuberculous adenitis. It comprises several therapeutic elements, the effect of the marine climate, the continued breathing of sea air, sea baths, the local application of sea water, the sun baths on the beach, etc. These elements must be separated in an intelligent use of the treatment and some of them must be eliminated for certain cases. The sodium chloride treatment has also received quite general approval especially in German institutions. The similar results may be explained by the almost identical physiological action of the two measures. Robin has shown that general metabolism is promoted by them and nutrition improved. The excretion of urine is increased while at the same time total demineralization and the production of uric acid are diminished. They are indicated where the oxidation of nitrogen is diminished.

Fortunately these two methods of treatment may be combined or substituted for one another in whole or in part. Sodium chloride baths may replace bathing in the sea for those invalids unable to take ad-

vantage of the latter. Those who have marked tuberculosis of the lungs in addition to their glandular trouble are of this number. In passing it may be said that the presence of tuberculous glands in the mediastinum is not in itself ordinarily a contra-indication to the sea treatment. Sea bathing is also not available for infants under three years of age on account of the chilling from which there are likely to be bronchial complications. Their fright may also cause excessive nervous reaction. Nervous invalids or those who are rheumatic are likely to be more inconvenienced than benefited by the sea bathing.

Many persons who cannot utilize the complete sea treatment may be benefited by a partial application of it in connection with the use of chloride of sodium. Such an association of measures is especially indicated in a general condition of atony shown by anorexia, ready fatigue and anemia. Moreover, when a satisfactory improvement in the local conditions is not obtained by the sea baths, or when there is high temperature, the combined treatment may be beneficial. Often the diseased glands, those of the neck for instance, may be where they are not readily affected by the sea bathing. In such cases compresses soaked with sâlt water offer a substitute which is readily applied. The strength and duration of these applications may be varied, as well as their temperature. Professor Robin has shown that there are variations in the effect of sodium chloride waters depending on their richness in salt. Every salt bath increases nitrogenous metabolism as shown by increased urea, total nitrogen and coefficient of oxidation. The "one-quarter" bath increases urea slightly as well as the total nitrogen, the oxidation, the chlorides, the breaking down of phosphates and diminishes uric acid. The total or entire bath accentuates these effects markedly. Regular and careful urine examinations are thus of value in controlling the treatment. Sea water is said to diminish nitrogenous changes, the coefficient of oxidation and the elimination of phosphates, while strong salt waters have the opposite effect. They both have a similar action as regards the elimination of phosphates. Biaritz is practically the only place where there are warm salt natural baths and which also has the advantages of situation on the coast.

In the employment of sodium chloride water various methods of administration are utilized, such as baths, douches (general and local) compresses, etc. The procedure varies with the different cases; take for instance, tuberculosis of the glands of the neck; if the glands are still movable and not softened, all the hydrotherapeutic measures may be employed. The salt bath may be rapidly brought to a high degree of concentration. The patient may be completely submerged to the neck and thus take advantage of the local as well as the general action of the remedy. If it is necessary to stimulate the nutrition as much as possible, a general douche may also be employed, either hot or cold; local douches hot as possible may be employed as a revulsive measure.

If the glands are adherent to the cellular tissue or the skin, if they appear inflamed and have a tendency to suppurate, only baths and compresses should be used. They should not be as strong as under other conditions. If glands in the process of suppuration are concerned the baths only should be employed, without the immersion of the neck in

the water. The pus which has formed should be removed by surgical measures.

When, however, we have to do with glands which have been suppurating and discharging for a long period of time, and there are fistulae, the various douches and compresses may be useful.

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*Society for the Scientific Study of Tuberculosis. (Societe D'Etudes Scientifiques sur la Tuberculose.)*

*Meeting of June* 13, 1907. *Revue de la Tuberculose,* 1908, *2nd Series, Vol.* 5, *page* 157.

The medical treatment of tuberculous adenitis was the subject of a paper by Dr. Robin. He discussed the matter under the heads: General treatment, Local treatment, and Hydromineral Treatment.

General treatment should first of all be hygienic. Fatigue should be avoided, there should be life in the open air, the windows should be open and there should be abundant nourishment. General medical measures which may be employed are the administration of cod liver oil, iodotannic syrup or arsenic in one of its various forms. Among local measures he considers the use of plasters and ointments as of no value. He recommends injections of Fowler's solution continued throughout a long period and radio-therapy. The hydro-mineral and climatic treatment consists of residence at the seashore with the use of sodium chloride baths. Other speakers favored the use of tuberculin.

With regard to surgical measures Villemin stated that they should only be exceptionally used and should be reserved for the advanced stages of softening and fistula formation. After having reviewed the pessimistic conclusions of Jeanell as the result of experimental work, he shows that surgery in these cases is mainly a palliative measure. He has not tried Bier's method of treatment and so cannot speak regarding it. He has used injections and prefers iodoform and camphor naphthol for this purpose, injected in doses of five or ten drops in the center of the gland after aspiration of the pus. Either the iodoform or the camphor naphthol may produce poisoning or troublesome sclerosis. These injections are not indicated except in the case of enlargement of single glands which are superficial, and then only when there is suppuration. He has abandoned the injection of chloride of zinc about glands.

He employs curettage only exceptionally but considers it a valuable resource when extirpation is impossible or dangerous. Contraindications to extirpation are generalized glandular disease, advanced tuberculosis and high fever. Having described different technical matters as regards the incision he concludes: First, that small hard diseased glands should be treated medically. Enormous hypertrophic lymphomas which are movable and indolent, unattended with functional disturbance and of tuberculous nature, as shown by inoculation should be extirpated. The single caseous glands in the neck should be treated by medicinal injec-

tions in order to avoid disfiguring scars. In all other regions extirpation would be preferable. Multiple caseous adenitis should also be treated surgically. If the diseased gland is frankly suppurative injection is the procedure of choice. If there is a cold abscess, with secondary infection, there should be a free incision with curettage of the pocket. In the case of fistula formation with sinuses extirpation is the procedure of choice providing a small gland is not left untouched, which may cause a recurrence.

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*Pseudo-tuberculous Dyspeptics.*

LEVEN. *Revue de la Tuberculose,* 1908, *Vol.* 193.

The desire to diagnose tuberculosis in its earliest stage has led to the treatment of many persons as tuberculous who really do not have the disease.

A certain class of dyspeptics are especially likely to be thought to be suffering from tuberculosis, since they cough for months or years, have dyspnoea, frequently have diarrhea, are pale, anemic and are very emaciated, since their anorexia prevents proper nourishment.

These pseudo-tuberculous invalids are frequently infants, sometimes adolescents, but most commonly of all, young women from fifteen to twenty years of age. In the latter there are often differences in the respiration of the two lungs which are attributable to faulty development of the chest. There may be defective breathing on account of lack of exercise. These anomalies may sometimes—as the author shows—be corrected by a course of appropriate respiratory exercises.

The cough and dyspnea may so closely resemble the same features of phthisis as to deceive the most experienced. In certain instances the nature of the case is made clear only from the results of treatment. If the cough and dyspnea are due to dyspepsia, they disappear some days or weeks after the proper treatment is instituted. The appetite returns and the patient again becomes well nourished. If due to tuberculosis, there is no such result. On the other hand, forced feeding and the use of drugs which may disturb digestion aggravate the pseudo-tuberculous dyspepsia.

In children the diagnosis is frequently obscured by a concomitant whooping cough or grip, which may produce a localized catarrh in the lung. A table is given showing that eight children who coughed six months or more, some of them for years, were completely cured.

The pseudo-tuberculous dyspepsia is found most frequently in young women; one symptom or another may be more pronounced, but a general description may give an idea of the usual clinical picture:

The patients are narrow chested young women with weak muscles and faulty development, due in part to the chronic dyspepsia and in part to lack of physical exercise, which has been crowded out by study. Their appetites generally poor, improve during vacations. They are badly nourished on account of their persistent anorexia; often the dread of

getting stout is one of the reasons these young neuropaths lose the inclination to take proper nourishment. There are frequently enteric crises which simulate appendicitis, but they continue to suffer after the appendix has been removed. The indigestion takes many forms; somnolence after eating, nausea, gastric pain, etc., and eructations appear. The tongue is coated, menstruation may be painful or it may be absent for several months. Hyperesthesia of the solar plexus is shown by the tenderness in the epigastric region and dyspnea, which accompanies pressure there. The neck, arm and shoulder may be hyperesthetic. On account of these sensations and the dyspnea of gastric origin, they avoid exertion. They easily become hoarse while talking, since they do not know how to breathe, and usually have a slight cough. The cough, dyspnoea, hoarseness, lack of appetite, loss of weight, their tired appearance and pallor, all unite to alarm the physician, who pronounces the case tuberculosis if he considers the alterations in breathing conclusive evidence. If the patient has any fever he announces that the disease will have an acute course. The author has seen "pseudo-tuberculous" dyspeptics who had some fever for a month, no other origin for it being demonstrable. Raffray reports a similar case in which the elevation of temperature lasted forty-five days.

The author believes that these patients who recover have had a nervous elevation of temperature which is not to be confounded with a true febrile condition, the latter being accompanied by modifications of respiration, excretion and nutrition, while after several months of the nervous elevation there may be no loss of weight, but rather an increase. All the author's "pseudo-tuberculous" patients recovered their health; he has kept himself informed regarding several of them for eight years after their illness.

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*Tuberculosis and Metropolitan Pauperism.*

T. S. Toogood. *The British Journal of Tuberculosis,* 1908, *II,* 166.

The treatment of the Metropolitan consumptive is a matter of great complexity, involving many interests and having numerous ramifications. The long duration of the illness, its infective character, and the necessity for the assumption of some portion of the responsibilities of many of the patients makes it such.

Paupers may be roughly classed as (1) tramps, (2) inmates of poorhouses and similar institutions, (3) those who receive outdoor relief. Among the first class consumption is not very prevalent though it is impossible to form an accurate estimate of its frequency. The out-patient departments of general and special hospitals are unable to exercise the control and supervision necessary to render the patient harmless to the community. It is idle to expect the carrying out of measures designed to ensure the safety of others when neither the patients nor their relatives are able to appreciate the necessity for their enforcement.

The author is strongly of the opinion that a determined effort should be made to gather all consumptives into institutions unless their circum-

stances are such that adequate and efficient means of disinfection can be carried out at home. Dr. Newsholme's view that the diminution of the death rate from phthisis is due to the greater measure of segregation of these consumptive cases in their later and most infective stages, is approved.

There should be more rational treatment in the infirmaries and workhouses. In some of them the admission of night air into the sleeping apartment is regarded as an act approaching impiety; in others modern fresh air treatment is provided.

There is need for centralization in the administration of the London Poor Law. An experience of twenty-two years in Poor Law infirmaries has convinced the writer with ordinary precautions phthisis is not readily communicable from one person to another. During that time he recalls but three medical officers in the whole of London who became phthisical, and only one nurse in these same institutions.

Thirty-five per cent. of the deaths from pulmonary tuberculosis occur in the Poor Law institutions, an eloquent testimony of the influence of tuberculosis as an impoverisher. "The health authorities are urging us to cure what they should have prevented by housing reform, factory and office ventilation and the teaching of hygiene and temperance in the elementary schools."

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# ALBANY MEDICAL ANNALS

## Original Communications

### ADDRESS TO THE GRADUATING CLASS

*Of the Albany Medical College, May* 18, 1909

By A. JACOBI, M. D., LL. D.

There are several things I take for granted. You approached the study of medicine well prepared. For studying *itself* must be learned by protracted application, in the same way that muscles cannot be developed into power and endurance without prolonged and systematic exercise. Then you worked hard your four years. I feel certain you know quite much; there may be even those who know it all; and more confidently now than twenty years hence. You have even succeeded in informing your professors of things they were courageous and inquisitive enough to ask you about. Some of you young doctors may even know enough to know they are not doctors—yet.

So I approach my task with a great deal of diffidence. Still, I thought my young friends and the ladies and gentlemen present would not object to listening to some remarks,—fragmentary though they be,—by one who has only one claim, which is that he has served in the rank and file of his vocation what they call a great many years, and is sure of one thing only, viz., that he meant to give to his profession and to the people what little he may have possessed of brain and heart.

You are at the threshold of your career. Leaving the institution which gave you much information and some training, you would have more callousness than I credit you with if you did not wish to know something of the profession,—the doors of which are ajar for you,—and what it stands for. After you have once entered most of you will not be willing or able to leave it. If most of what can be said of our profession enlightens you and warms your heart, medicine purified and purifying will have gained new apostles.

The history of modern medicine in our country is a memorable proof of democratic evolution, worthy of and co-ordinate with this country of ours. What it means, however, to the country and to mankind, and what it and its profession stand for, no single hour will ever be capable of rehearsing.

The progress of medical science and art in America has not been the mere adoption of continental European achievements. These were cultivated by the governments: our democratic institutions, however, did not permit that,—our medical schools were all private enterprises until a comparatively short time ago. It has been the profession,—that means the country and city doctors,—that has aided the schools in every progress, and often taken the initiative. The lengthening of the courses of instruction from a few months to two years, to three years, and to four years; the enforcement of a more advanced education preliminary to matriculation; the introduction of state examining boards; the prevention, as far as possible under laws which sometimes favor incompetents and criminals, of fraud and quacks and diploma-mills; the demands for the extension of clinical instruction,—in which our average school is still fifty years behind Europe,—the foundation and endowment of laboratories; the early obedience to the rules of an ethical behavior; the abrogation of obnoxious claims on the window-signs and of specialistic advertisements,—they have all been the result of the spontaneous efforts of the democratic profession. Thus it happened that if ever there was in its ranks a man who was not a gentleman, he was obliged, if he meant to be counted in, at least to behave like one. In that respect we are far ahead of Europe, where they are at present engaged in wishing for a code of ethics which we abrogated a few years ago, when the profession at large became aware of the fact that a professional man requires only the instinct and the behavior of a gentleman,—without threats, or coercion, or fines. These are some of the things our profession stood for and stands for.

You notice I have a great opinion of the profession to which I belong as a private. I am just as proud of our officers and leaders.

Our America has not failed to contribute to the progress of medicine. According to long-established British habits, fortified by the teachings of French medicine such as it was in the first half of the nineteenth century, American medicine has proceeded

on the lines of close observation and clinical experience. Since Pasteur, when the laboratory conquered its place alongside clinical work, we have not waited long before taking our place with the most successful investigators of Europe. Among our living leaders, I count with pride Weir Mitchell; Theobald Smith and Reginald Fitz of Harvard; S. W. Meltzer and Simon Flexner of the Rockefeller Institute,—the latter if not the creator, at least the most successful fosterer of the serum against cerebrospinal meningitis; Herman Biggs and Wm. H. Park of the New York Health Department; William H. Welch of Johns Hopkins,—whom on account of original discoveries, broad general information and eminent service as an eloquent lecturer and speaker I should mention as facile princeps,—the present head, if there be any, of American Medicine.

What more does the medical profession stand for? These fifty-six years I have tried to solve that question by close observation in private practice amongst the rich and the poor, in public work amongst the medical societies and institutions, in the individual sick room, and in the profession's public efforts as sanitarians, in prevention and in cure. I have never found the profession wanting, though I assure you the life of a physician is a hard one, even to those who do not exactly remain poor in worldly possessions.

This life is one of continued service, paid or unpaid. Indeed, he is a "therapos," a servant. Are you looking for leisure, for wealth?

I take it for granted, or rather I wish, that most of you are preparing for a general practice amongst your countrymen. I hope so, for the general practitioner is the most dignified, the most useful, the broadest member of our profession. He may conquer a happy life if he be satisfied with the rewards of a clear conscience and the knowledge of manifold interminable duties well performed in manly usefulness.

If there be a poetical vein in him he will be pleased to remember that all the gods of the ancients were only specialists. One was a smith, one was a thunderer, one was a beauty only. The loveliest of them all was he who sent epidemics and cured them, who was the poet, the musician, the dancer, Apollo.

Are you looking for pleasant days, healthy occupation, quiet nights, regular meals, financial success, popular recognition, warm gratitude on the part of those you have benefited or in whose

service you have sacrificed your comfort and your health, with or without success?—You are young, the world is wide,—turn your ship and steer in other directions, seek other fields of labor. For you may be disappointed.

From the orator of the semi-centennial celebration of the New York Academy of Medicine I quote the following lines:—"Perhaps some of you remember having gazed at a statue at Munich. It represents a youth climbing upward, passing disdainfully the golden calf to attain what he evidently believes to be a crown of laurel in the hands of the goddess. What he finally snatches is a crown of thorns. Still he climbs, maybe to reach the stars, to which the poet-philosopher bids us hitch our wagon. Not everyone falls like Icarus, and your horizon enlarges from the heights. Unless, however, that horizon be vast, both the morals and the science and art of medicine will suffer. It is from that point of view also that neither pure scientists nor practitioners should ever forget that there is no antagonism between the two classes.

There was a time when the pure scientist, the narrow laboratory man, looked upon practice as inferior, and the practitioner upon pure science as beyond the pale and unpractical. Helmholtz, however, than whom the whole century has provided no more intense worker in pure science, proclaimed that pure science is not the aim of man; that you may dignify it in two ways only—either by enlarging or by applying it.

Apply what you know and daily learn in the community's service. There is no power more worth possessing and more inestimable than life and health. Mind what is inscribed over the gate of a Swiss Hospital: "Res sacra miser," misery is sacred. So your patient, your community, are sacred.

No one has more opportunities to recognize that than the general practitioner. Only do not forget, I beg of you, that you must be what you set out for, a *general* practitioner. Your horizon is naturally so much wider than that of the specialist with equal gifts, industry, and interests that it takes for you harder work and more altruistic abnegation. You cannot know everything, you have less dexterity in certain applications; may not enter into competition in the intricate ailments of the eye or ear; but your human interests are wider on account of your varied occupation, of your contact with the people, their families, habits, inheritances, circumstances, mode and place of living, joys and

sufferings. In a century in which the influence of the sectarian clergyman as a home adviser decreases and the lecture hall takes the place of the local church, the Doctor was, and is or should be to-day, the adviser and friend of his confiding clientele and his town. It is he that will be at the same time the individual and the family doctor, the sanitarian of the town or county, and the trusted teacher of hygienic principles which are the same in city and country, big or small places, and differ only in their application to the need of the population. I have quite often seen my brother practitioner in that position,—the esteemed friend and revered authority, mainly of the educated part of the population. Still, his is uphill work. For in our present generation some fake information is greedily caught up from pretentious daily prints whose overbearing assertion of knowledge is readily shared by a thousand readers, of the class whose circumstances do not require them to give their whole days to business or labor. The mechanic and working man who is kept busy all day has no time for the by-ways of semi-information. In many of the well-dressed and fed and housed people, the accumulated ignorance, which is always combined with presumptuous vanity, leads to dire consequences. Thus it happens that in all Anglo-Saxon countries sentimentalism and fanaticism are running amuck. In England, the anti-vivisection movement,—that means the fight against animal experimentation undertaken in behalf of the study and prevention of infectious diseases,—has led fanaticism into the cool statement of unmitigated untruths; and that against vaccination,—which has stood the test of a century,—to the proposal made, according to Philadelphia newspapers, by the ladies of both sexes that one of them on one side, and Dr. Dixon the head of the State Board of Health in Pennsylvania,—or if he would refuse, then Dr. Neff of the Philadelphia Board of Health, on the other, should lie down with a smallpox patient. It was not stated, however, what that sandwiching would do for the patient, or for one of his bed-fellows, or for science, or for smallpox.

What does the profession stand for in connection with these questions?

In some countries of Europe it has succeeded in instructing the people and the governments. Germany is a vaccinating country, and knows no smallpox. In the Franco-Prussian war of 1870-71 the Germans lost from smallpox, of their one and a half millions

of soldiers 456, the French, 23,600. Evidently it pays to learn and to know, it pays still better to be guided by knowledge.

What has the profession done in connection with the other important question I mentioned, that of animal experimentation, which is the foundation of modern physiology and,—to bring the matter very near you,—of life-saving serum treatment?

Not much, indeed so little that it has fallen into the trap of adopting the nickname given to research experimentation by its enemies, viz., the term "vivisection," which should never pass the lips of a scientific doctor except in quotation. Animal experimentation is almost suppressed in Great Britain, the country of many fads, alongside of aggressive suffragettism. The result for England is that its physiology is inferior to that of the world, and that when an English Scientist looks for the confirmation of a justifiable hypothesis he must go to France for an opportunity to study.

And we here? For thirty years annually we had to go to Albany to defend the science and art of medicine, and the people against the attacks of unemployed, idle, well-meaning, or, as the case may be,—ill-meaning, hysterical or not hysterical, mostly childless, persons of both sexes. What I have always blamed the medical profession for is that it has occupied a defensive position, instead of preparing the legislature, the Governor, and the public at large which delegates them, for the always renewed attacks on animal experimentation by friendly and popular instruction in magazines and newspapers. I do not speak of interviews which are, as a rule, superficial, thoughtless, haphazard, sometimes merely advertising schemes on the part of notoriety seekers. I mean essays, not drawn out, but brief enough, in plain, popular language, without Latin and Greek technical terms. You may not believe it, but there are doctors left who know English, and who know how to write it.

It will not do to blame our legislatures for the frequency of the attacks on science and art and for their indisposition to side with what at the same time is the contest of the profession and the welfare of the community, as long as we have been supine and indolent. However, as late as this year, at last, a self-constituted committee of medical men has prepared a score of popular and withal scientific papers on the value and significance of animal experimentation, for the use of the public in magazines, and in leaflets for the instruction of legislators. What has been the im-

mediate result? Two hearings before full and well-informed and sympathizing legislative committees, and the burial in Committee of the anti-vivisection bills presented by well-meaning and ill-disposed ladies, and well paid and nothing else lawyers. The leaflets may be had at the office of the Medical Society of the State of New York, in 17 West 43rd Street; it contains whatever you and I, the doctors and the public, need to know on the subject of animal experimentation. They are easy reading, instructive and convincing. It is proper that we, the people, should be watchful and jealous in regard to our legislators and Executive and hold them responsible for mistakes made in our service, but in regard to our rights and their duties we are too lenient to ourselves and too exacting with them when we believe we have done enough in electing them and sending them on their errands, and then foam at their mistakes or illdeeds resulting from their ignorance of matters foreign to them, or of many of them, which we were not alert enough to correct. We owe them information.

The science of hygiene owes its origin and development to two causes,—first, humanitarianism; second, utiliarianism. The first owes its existence to the sympathizing human heart; the second, to the problems of necessity viewed from the point of political economy. When, in February, 1848, Virchow, then a young man, was sent to Upper Silesia to study the epidemic typhus which diminished the number of subjects of the Hohenzollern family to a formidable degree, he returned with his report, founded on his observation of the living, the starving, the sick, and the dead,—that what was wanted to prevent the scourge was less medical treatment than the improvement of the social condition of the dirty, hungry, starved, bigoted, and ignorant population.

He looked for safety not in drugs but in culture,—in social reforms, in education and its daughters,—liberty and prosperity,—in full and complete democracy. He advised popular education, agricultural schools, the raising and teaching of the numerous orphans, the building of roads,—indeed, the recognition of the fact that the nineteenth century was to be the beginning of the social era. In a journal founded in the same year of the political revolution of 1848, he also proclaimed what should be the gospel of every physician: "The physicians are the natural attorneys of the poor, and the social problem is to a great extent part of their jurisdiction." In connection with that, he demanded a reform of the nursing of the sick, which should be obligatory;

also the possibility of a hygienic existence; also a reform in the *medical* profession, in *medical* teaching, and in state medicine. You can imagine what happened. He was deprived of most of his positions in the University, but the spirit the Government had called up was indomitable, and the stone they thought of rejecting became the cornerstone of modern medicine and of political liberalism.

That is one thing the medical profession must stand for, but it wants allies—you, all and every one of you!

The heart alone will never be a proficient factor in the creation of a scientific hygiene. That requires, without excluding sentiment, knowledge and the application of logic. That is why anti-vivisectionists and anti-vivisectionism play such havoc through sentimentality. Utilitarianism is created by the necessities and the natural egotism of an individual or of society, which tries to protect itself against the contagious diseases of its neighbors. The mediaeval lepra houses had nothing to do with sympathy or pity—people merely imprisoned the sick to protect the well.

Jenner's vaccination, the most influential preventive of a whole century, was meant to protect the well, and has succeeded in exterminating smallpox in countries whose hygiene is not controlled by capricious ignorance. The practice of cleaning streets and sewers, the very building of sewers, and the regulation of the water supply were necessitated by the imminence of cholera and the fear lest the population might be diminished. Since 1840 Norway has reduced its 2,000 lepers to 200.

Those who are intimately acquainted with what has been called by the misnomer "lower classes," that is those who suffer most from all forms of tuberculosis, and mainly pulmonary consumption,—have long come to the conclusion that the malady depends to a great extent on improper or incompetent social conditions, and that the extermination of the great plague is, in a great measure, a social question. Virchow's conclusions, drawn from his experience with pestilential typhus, apply with the same force to tuberculosis which, though it be a preventable disease, cannot be prevented so long as the origin and the deleteriousness of pulmonary and other tuberculosis cannot be stemmed by ample space, air, isolation, rest, food, and appropriate medication. So long as these cannot be procured, whatever leads to the realization of preventing or curing should be welcome. In that light the fight for high tariff or low tariff, or merely political problems

appear criminally insignificant, and the movements in favor of enabling the millions of unfavored, hungry, uneducated people to live a human existence,—call these movements liberal, humanitarian, or socialistic,—find their ready explanation. For you and for millions, religion and good citizenship may be made equally effective in promoting human welfare.

Water-borne epidemics of typhoid fever are still frequent. The medical profession does not stand for that, but against it. Other outbreaks are due to milk,—a large number of cases, hundreds of epidemics, have been traced to a single milk route. One such occurred in Stamford, Conn., a little while ago. Typhoid fever in the family of the farmer or amongst the employees, has been found to infect extensive neighborhoods. Strict sanitary regulations are liable to be effective; more effective, is the *obedience* to these. Inspection is expensive,—at least our legislators say so, and refuse the appropriations required for that purpose by the Boards of Health. They think it is less expensive to have our people die of typhoid and tuberculosis, which are not expensive, if you call no expense the four hundred millions,—or much more,—for which the United States is mulcted annually by the loss of two hundred thousand consumptives only.

Dr. George M. Kober, of Washington, D. C., during the Governors' Conference at the White House last May, presented figures which showed that the decrease in the "vital assets" of the country through typhoid fever in a single year is more than $350,000,000. Typhoid fever is largely spread by polluted water, so that the death rate from this disease can be directly reduced by the purification of city drinking water. The increased value of the water to the city of Albany, N. Y., where the typhoid fever rate was reduced from 104 in 100,000, to twenty-six, by an efficient filtration plant, amounts to $475,000 a year, of which $300,000 may be considered a real increase to the vital assets of the city. The average annual death rate from typhoid fever in cities with contaminated water supplies, was reduced from 69.4 per 100,000 to 19.8 by the substitution of pure water supplies.

There are however cases and epidemics of typhoid fever which cannot be traced to obvious causes. For some years past many typhoid cases found no explanation at all. A few years ago in Strassburg, a number of cases which occurred in the same family were traced,—after long searching and delay,—to a female employee who had had typhoid a dozen years previously. Dr.

Soper, of New York, followed up the cases of typhoid in seven different families, and found that they were all infected by a woman who,—since she had had typhoid many years previously, and had been apparently entirely well,—had served as a cook in all of the families, one after the other.

Many such cases have been reported, before and after. A year ago, twenty-six cases occurring in Georgetown, D. C., in a single week, were finally traced to the dairymaid, who had had typhoid fever eighteen years before. If it were the intestines of these typhoid bacilli carriers alone that were the seat of the bacteria and of infection, we might hope to reach it by treating these seats of infection,—if that were not difficult, or almost impossible. Nothing, however, is more difficult. An intestine thirty-five feet in length is not easily reached, either from above or below. It is true, bacilli can be killed, but often not before their hosts,—poor you and me,—have been killed by the strong and dangerous measures required. The case, however, is still worse. In most of the instances recorded, the main seat of these bacilli is in the gall bladder, which can be reached at the present condition of our knowledge, by an operation only. Is Bridget to present a certificate, before you employ her, of having undergone an operation for gall-bladder cleaning or extirpation? Perhaps there are some Bridgets, of either sex, here amongst those who once had their typhoid. I once read that "man is always in the midst of his enemies;" here, however, it looks as though bacilli or no bacilli, every one of you was in the midst of his friends.

One more word on typhoid fever: We all remember the so-called Spanish war, many would wish to forget all about it but cannot. Though our victory was conclusive and brilliant, like that of a 200-pound athlete over a half grown-up invalid, our losses in men and cripples surpassed vastly those of the enemy. Our losses by typhoid fever and dysentery at Chickamauga, in Cuba, and at Montauk, resulted from our culpable neglect of the simplest health regulations. If it had not been for the men and women who gathered at Montauk to feed and to nurse, and the moneys furnished by volunteers, many more hundreds would have perished on the sand of Long Island. We knew it all, we forgot all; our pensions, however, do not wipe out the inhumanity of our neglect. I pray it will be the last unheeded warning.

Meanwhile, being a glorious,—and sometimes also a rather

vainglorious people,—we boast of our sanitary achievements, justly so in a few respects. The mortality along the formerly fatal Panama canal is less than that of New York. Some say that result is the outcome of medical science and art. Unfortunately, that is true in part only. To prevent disease and death two things are required: first, the knowledge of the causes of diseases and of the means of preventing them; second, a man, or the men, to change knowledge into action. That is what a doctor has done. His name is Gorgas. His title is that of a colonel, and he is an army doctor. His application of the results of medical research and experience has performed the miracle of making Panama salubrious. It is the doctors who are building the canal. "Dirt does not fly" at the hands of shivering and emaciated men. And the corpses of those stricken by malaria, and typhoid, and yellow fever are not encouraging to the survivors in the field or in the hospital tents. Said "dirt flies" only when the doctors make it fly. That is what the medical profession stands for.

Now, gentlemen, your duties as life-long advisers in matters medical and hygienic, and as conscientious citizens, are not limited to *these* questions. There is the prohibition hurricane,—no longer a mere wave; the question whether alcohol is a stimulant or depressant, a medicine or a food, or a poison, cannot be discussed here, or to-day. We all agree that alcoholism, both acute and chronic, is a curse for man and woman, for the town and country, for the present and future of mankind. But a hurricane is unreasoning and destructive. Its appearance in human brains is a form of temporary insanity, which *you* should aid in preventing or curing. The most "air-tight" prohibition law is that which will go into effect in Kansas within a few days. It provides that "any person who shall manufacture, sell, or barter any spirituous, vinous, fermented, or intoxicating liquors shall be punished." The punishment for each offense is a fine of $100 to $500, and imprisonment in jail of from thirty to ninety days. The new act makes only one exception, that of the sale of wine for communion purposes, and does away entirely with drug-store liquor permits. It provides that physicians shall not prescribe liquor for the use of patients.

I feel perfectly sure that even this spell of crazy ignorance will contribute to improving the physical and moral condition of the people. For experience teaches that every revolution ends,—not

in the achievement of what it alleged as its purpose,—but in accomplishing some of its aims; that is a reform. If that were not so the drunkenness of alcohol would be no worse than that of the prohibition craze. The final result will be that we shall surely be on the road which leads away from intemperance.

But these fifty-six years of my medical practice I have convinced myself that physicians' prescriptions should not be barred out even in that Kansas which has been notorious these fifty years. A year ago I had the opportunity of speaking on the subject of nihilism and drugs before the Medical Society of the State of New York. In that address I spoke of the treatment, for instance, of the fatal cases of excessive diphtheritic sepsis, with the foul odor from nares and mouth, the colossal glandular swellings, bloody and serous nasal and pharyngeal discharges, erosions, petechiae, or other hemorrhages, unconsciousness or coma, and,—unfortunately,—no increase of temperature. "You know these are the cases in which you and your antitoxin are powerless, and the only possible salvation is in local anti-sepsis and most energetic stimulation. They die, all of them, unless some are saved by a drug. That drug is alcohol. Bacilli, and cocci, and toxins do not engage in a playful game,—they mean fatal business. So you had better not play with your antidotes. No dose of alcohol,—internal, subcutaneous, or rectal,—administered intelligently, is too large. No dose will ever intoxicate so long as the sepsis is not overpowered by daily doses of five, ten, or fifteen ounces of whiskey,—properly diluted,—given to a child of three or five years. Do not let up on whiskey before sepsis lets up on you."

Emmerich claims that his pyocyanase treatment,—the result of bacillus pyocyaneus aureus cultures,—reaches cases not influenced by antitoxin; but his experience,—which is that it acts mainly in cases with very high temperatures,—is no recommendation for its efficiency in the very worst cases of septic diphtheria. Indeed the saddest forms are those with a nearly normal, or even a decidedly subnormal, temperature. Let us pray and hope that the ignoramuses and hypocrites, and their misguided adherents in Kansas will not experience in their own children, before their senses return, epidemics of septic diphtheria such as I, and some of us here, have known. And let me admonish you, my friends, when a therapeutic or sanitary question comes up in our political life, to remember that you are responsible

citizens as well as conscientious doctors, and that your sworn duty to the profession and the commonwealth obliges you to stand in opposition to obnoxious legislation. Please remember what Anacharsis said of Athens,—that "the wise men in Greece do the talking, and the foolish and vicious the governing," and see that Albany shall not become that sort of Athens.

Nothing is more justifiable than our pride in the medicine of to-day, and the requirements of medical research and the perfection of our art,—both of which enable a man of thirty to be a good enough, and a man of forty to be a good doctor. That was not so formerly. When diagnostic possibilities were less numerous and less exact, and accurate hospital observation connected with exact studies were out of the question,—it took advanced age to gather experience which could be utilized in the service of the sick. It is lucky for the commonwealth that this has undergone changes. There are a great many more useful doctors at present than formerly, if only for the reason that you need not be matured for the cemetery age before you reach that of practical competence. But all that glitters is not gold. There is a reverse side to it. Often there is more dexterity and more savoir faire amongst us than extensive erudition, which was characteristic of our fathers. We pay no regard to history. A genuine statesman, aye, even a politician,—unless he be a low ward-heeler,—without a knowledge of his state or country, is no possibility. No architect, no engineer, would consider himself equipped without a knowledge of the history of his art. We, however, pay little heed to our past. We may not be the only profession thus ungrateful, but we are more injured by that ignorance. Our medicine is in part built up, like our Anglo-Saxon law, on precedents. They are much mistaken who believe that there were chaos and darkness before we,—poor we,—opened our eyes on the sudden light of this or of last year. There were years and men before. Sydenham, three hundred years ago, Boerhave, van Swieten, Peter Frank, Albert Haller, more than a century ago; Watson, Drake, Trousseau, Laennec, Oppolzer, Niemeyer, they form a series of names of illustrious men each of whom,—even they,—stood on the shoulders of his predecessors.

The present should always be studied by the past, and is best *understood* by the past. That is why, when you want to understand the physiology and pathology of the adult you study

first the child in its growth; if those of the child, study the fetus and the embryo. That is why Gerhardt and Grancher could be the eminent physicians they were, and Rauchfuss is the great medical man of Russia.

So the essence of modern medicine is explained by the story of the past, and a logical understanding is possible only for those who acquaint themselves with the history of at least the last twenty-five hundred years of medicine. But, lo and behold, we think so little of it here that no university has a chair of the history of our science and art! Only lately I heard of an occasional course of lectures on that subject.

Our very therapeutics are in part old. Sulphur was used as a disinfectant before Homer. After slaughtering hundreds of matrimonial candidates of Penelope, sly and brave Ulysses tells his housekeeper to get sulphur for disinfection. The Arabs used rhubarb; aloe was known before Dioscorides; male fern was known to the Greeks and Romans, podophyllin to the East Indians, Mercury to the Crusaders, Iodine was used in goitre in distant centuries in the shape of sponge, borax in epilepsy, cantharides have quite a history. It is praised by Dioscorides. Lucretius is said to have died of the drug. Ambroise Paré reports such cases. Catherine of Medici, pious Catherine, introduced it in court circles. It was very popular at the courts of Henry III. and Charles IX. of France, and Richelieu used and recommended cantharidal bonbons to his friends of both sexes.

A goodly part of our modern hydrotherapy you may read up in Celsus and Galen. Our very organo- and sero-therapy has a preparatory ancient history. Paulus of Aegina reports that Mithridates, King of Pontus concocted antidotes out of the blood of many animals; Pliny said that the same king mixed his poisons with the blood of ducks fed on poisons, also that the bile of poisonous snakes or the mashed lung of one was used against snake bites.

Before we built during the Civil War our famous pavilion hospitals, for which we earned the applause of the whole civilized world, Roverhead erected,—in 1756-1764,—a pavilion hospital surrounded by gardens at Stonehouse near Portsmouth. After him, LeRoy proposed a similar plan to Paris preparing for a new Hotel Dieu. He added measurements for buildings, rooms, air-space, etc. Four famous,—aye, immortal,—men were appointed a committee to report in 1786: Lavoisier, Coulomb, Laplace, and Tenon.

No eulogy of modern medicine is ever pronounced without a number of staple articles. The century gave us ovariotomy, but O'Donnell was roundly abused for it and threatened with malpractice suits; anaesthesia, and the *Edinburgh Medical Monthly* predicted: "Before twelve months are completed many shall have recovered from this etherizing reverie." We had the teaching of O. W. Holmes of the contagion of puerperal fever, and he was soundly berated and ridiculed by Hodge and Meigs; and the immortal services of Semmelweis,—you know their history? The Professor of Pathological Anatomy in Vienna, Kolletschka, cut his finger at an autopsy, and died of pyemia March 13, 1847. Semmelweis found at the necropsy the very changes he had noticed in his puerperal fever victims. Then he observed that amongst the puerperal women that were utilized for the instruction of midwives there were fewer deaths than in the wards in which male students were taught after coming from their dissecting work. For his sound observations and conclusions he was persecuted by Braun and Scanzoni until he died in a lunatic asylum in 1865. As he had learned from clinical observations, so Lister learned from Pasteur; fortunately, he was an Englishman. Now, the English are no angels, but they have common sense, and their medicine was never built up on fads and imagination. Even Brownianism found no favor in the country of its birth. They took to it in Germany, we took it up; our Rush was its prophet. It is true that two hundred years previously they treated their Harvey shabbily enough. Not a man who was forty years old adopted his teaching concerning the circulation of the blood, and he was pushed aside and lost his medical practice on its account. Goethe,—and before him Montaigne, who appears to have said everything before everybody,—said that no man over forty creates new ideas. It appears also that only men under forty accept new ideas. If you want to be safe, my friends, be sure never to be over forty. I am thirty-nine. I had the good fortune of being under forty when fifty years ago Horace Green taught the possibility of reaching the trachea by probes and catheters. I had seen him do it and did it for him and with him. But the old men in the New York Academy of Medicine, many of them otherwise great and famous, preached the impossibility of that procedure, and impossible it had to be. Then came bacilli, but a New York teacher of microscopy was loud in his objections to staining. He said that

what he could not see without staining could not exist. He was much over forty. You will find that in connection with everything that is new and accurate and epoch-making there are what D'Israeli calls "those superior persons" who know everything better; like the German Emperor of whom his Berlin subjects tell you that the Lord knows everything but the Emperor knows it better.

Then came the specific bacilli of diphtheria, of tuberculosis, of cholera, the specific cocci, and the ubiquitous cocci like the pneumococcus, and all the changes in etiology and pathology with which you are all so well acquainted. Then also the therapeutic measures, part of which are so very beneficent, and the new era of biochemistry,—what after all will shape the pathology of the near future more correctly than anything that preceded it,—with its organo- and sero-therapy, and experimental pharmacology in general,—all of that you know, and it is part of your medicine of to-day; and what you know as well is the safety of patients after carefully planned and performed operations. Now, if there is anything that has restored the unity of what was called medicine and what was distinguished as surgery it is the influence which experimental medical laboratories brought to bear upon both.

Another instance of historical injustice, is that of Bouchut. The Paris Academy of Medicine, amongst them Trousseau, the great clinician and tracheotomist, refused to listen to Bouchut who had almost completed his instruments for intubation of the larynx. Thirty years afterward, Joseph O'Dwyer succeeded in teaching intubation to a hundred thousand American doctors. You know that one feat made him one of our immortals. In America we were all under forty.

What is the advantage of knowing this, and a thousand other facts, and of our regret of forgetting them? It teaches us modesty. We learn that there were men before us who knew things and did things. It prevents us from discovering, and inventing, and claiming things that were discovered and invented before us; from writing papers which are made superfluous by earlier writings, not of yours, but of those who lived before you, *or got up* before you. It teaches us that we as individuals, you and I, are not alone in the world, that there are those before us and with us who are able to instruct us, and that much mental capital and much industry can be saved by studying the annals of our science and art.

It also teaches us that a hermit life is not wholesome; that the man, the medical man, who means to stand aloof from his peers, will soon be alone and solitary, and soon the man who thinks well of him as a peer or leader is he, and he alone,—the hermit. My lesson is for you: the first thing for you to do is to join your county society, and through it the State society. My experience is that in no society do I feel more at home and at ease, and amongst brethren, than in the Medical Society of the State of New York.

Now gentlemen, I have seen graduating classes pass before me and out of view for these fifty years. Many of the men whom I bade God-speed have passed away, many have filled their places with success and renown, others have disappeared from sight without leaving their imprint. Still there are opportunities for everybody. It is true enough that health, circumstances, and luck have a good deal to do with the happenings of whosoever is mortal. But there is no one that is not to a great extent responsible for his life. Self-made men endowed with principles and endurance are numerous in every trade or profession. Some rules indigenous with every ethical man should be followed, and perhaps it is unnecessary to urge them here. You have been undergraduate students until this commencement. Let it be the commencement of your post-graduate study as physicians and as citizens.

## ASSOCIATION OF THE ALUMNI OF THE ALBANY MEDICAL COLLEGE—THIRTY-SIXTH ANNUAL MEETING.

The thirty-sixth annual meeting of the Association of the Alumni of the Albany Medical College was held in the amphitheatre on Tuesday, May 18, 1909. The usual informal reception was held in the college library, where photographs were exhibited, and greetings exchanged between the hours of 9 and 11 A. M. The meeting was called to order by the President, Dr. Frederic H. Brewer ('78) of Utica, N. Y. at eleven o'clock.

The following named members of the Association, with invited guests, students of the college and others interested, were present: E. B. Boyce, A. De Graff, ('58); Wm. E. Johnson, S. H. French, ('59); A. B. Huested, ('63); C. B. Tefft, ('64); D. C. Case, W. G. Tucker, ('70); G. L. Ullman, ('71); J. H. Blatner, ('72); M. M. Lown ('77); F. H. Brewer, C. A. Ingraham, ('78); O. F. Kinloch, W. E. Lothridge, J. J. McAllister, W. J. Nellis, P. L. Suits, ('79); A. Y. Myers, F. A. Palmer, ('82); Wm. Davis, ('83); R. Babcock, J. Selkirk, E. Zeh, ('84); T. P. Scully, ('85); A. MacFarlane, C. H. Moore, H. F. C. Müller, ('87); A. H. Bayard, C. G. Briggs, A. M. Burt, S. Chesebrough, J. M. Mosher, A. T. Powell, F. S. Snow, M. J. Zeh, ('89); L. R. Becker, R. A. Heenan, H. E. Lomax, L. H. Neuman, C. F. Theisen ('92); T. W. Jenkins, W. B. Sabey, P. G. Waller, ('93); C. Bernstein, A. Sautter, ('94); J. C. Sharkey, H. L. K. Shaw, ('96); J. J. Beard, ('97); C. S. Prest, A. H. Traver, E. A. Vander Veer, ('98); G. E. Beilby, C. R. Conklin, C. G. Hacker, E. E. Hinman, J. A. Lanahan, B. Livingston, H. Moak, ('99); G. Lenz, (1900); L. O. White, ('01); S. S. Ham, ('02); I. E. Van Hoesen, J. N. Vander Veer, ('03); J. J. Cotter, D. A. Murphy, ('04); C. W. L. Hacker, G. N. Papen, Jr., H. Rulison, ('05); J. R. E. Ehle, C. B. Hawn, S. Kemp, Wm. A. Krieger, W. A. Reynolds, E. G. Whipple, ('06); R. A. Lawrence, T. Lawyer, ('07); W. H. Conger, J. P. Harris, J. J. A. Lyons, C. B. Phillips, M. W. Platt, R. E. Smith, P. J. Winslow, ('08); E. J. Abbott, M. Bellin, Wm. G. Bing, L. W. Burdick, T. C. Burns, W. F. Conway, H. H. Drake, G. C. Fish, H. B. Gillen, Wm. B. Gillespie, E. S. Haswell, H. Heath, T. M. Holmes, E. Kellert,

C. J. Kelley, E. F. McGillian, J. G. Gillicuddy, B. G. McKillip, F. W. McSorley, E. R. Messer, A. F. Mosher, A. E. Pitts, Wm. R. Rathbun, C. L. Russell, C. E. Slater, F. E. Vaughan, W. H. Waterbury, C. B. Witter, J. J. York, ('09); C. S. Merrill, S. B. Ward, (Hon.).

On motion of Dr. Neuman, the reading of the minutes of the last annual meeting was dispensed with and the minutes were approved as printed in ALBANY MEDICAL ANNALS.

The President introduced Professor Andrew MacFarlane, who delivered the following address of welcome on behalf of the faculty:

## ADDRESS OF WELCOME.

### DR. MACFARLANE'S ADDRESS.

*Mr. President and Members of the Alumni Association, Gentlemen:*

It is always a recurring pleasure for the Faculty of your Alma Mater to welcome you back to these halls, the scenes of your first professional struggles, and to congratulate you on the evidence of prosperity which you have each achieved. We feel the natural maternal pride in our ever-increasing progeny, and like the mother of the Gracchi point to you as our brightest jewels.

The maintenance of a Medical College without material endowment and with no State aid in a city the size of Albany, is no small task. The demands of modern medical education are such as to make medical instruction to-day by far the most exacting in time, and most expensive in equipment of the learned professions. The question naturally occurs to you—as it is always doing to us—whether our Alma Mater, judged by modern standards, is keeping abreast of these demands. The tests of any educational institution are the results attained and the character of the teaching body.

The good work being done by our graduates all over the country and the high standing they maintain in their respective communities, is the best evidence of the character of the work accomplished. The specific evidence of successful preparation for the arduous life of the physician is seen in the results of the State Boards of Medical Examiners.

In 1905, the fifty-six graduates of the Albany Medical College were examined in seven different States, and all passed. In 1906, thirty-seven graduates were examined in five States and all but one were successful, a percentage of 97.3. In 1907, the forty-three graduates were examined in three States and forty-one passed; a percentage of 96.3.

In 1908, forty-two graduates were examined and all passed. In the last four years one hundred and seventy-eight graduates have tried the State Board examinations, and only three have failed, a percentage of 98.8 of successful candidates.

This record, which will bear favorable comparison with that of any

medical college in the country, is still more remarkable when it is known that not a single student had been plucked in his senior year during this period, showing either that all the driftwood had been eliminated before it reached the senior year, or that the poorer students had been brought up to the State's requirements by the thorough training received.

More than seventy-five per cent. of our graduates take hospital service, and some of our recent graduates have secured appointments in the hospitals of New York city, Philadelphia and Rochester, Minn., in competition with the graduates of the best medical schools. Those who go abroad write me that in foundation training they are not inferior to the graduates of any of the schools of this country.

The character of the teaching body is shown not only by the fact of their high professional standing at home, but also by the honors conferred upon them by their colleagues in different prominent professional societies, and by other medical institutions.

The presidency of the Medical Society of the State of New York has been held by six members of our teaching staff. The American Surgical Association chose two members of the faculty respectively for the presidency and vice-presidency. The Association of American Physicians honored at its last meeting our Alma Mater and this community, by selecting for its president a member of this faculty—probably the highest medical honor in this country. The American Therapeutic and the American Pediatric Societies both had last year vice-presidents from this college.

In brief, it is no idle boast to state that in proportion to size, there is probably no medical school which wields a greater influence in the scientific societies of this country.

In our laboratory departments we have been fortunate in securing scientists of such eminence that their abilities were too quickly recognized by other institutions, and to our loss have been called to larger spheres of usefulness. Dr. George Blumer, for many years the honored director of the Bender Hygienic Laboratory, is now professor of Medicine at the Yale Medical School. Dr. Richard M. Pearse, the second director of the Bender Laboratory, after a valuable service of four years, was last year called to take the professorship of pathology at the New York University and Bellevue Hospital Medical College. His successor, Dr. S. B. Wolbach, after a too brief stay of one year, has to our keen regret, accepted the position of pathologist to the Montreal General Hospital.

Dr. Holmes C. Jackson, our professor of physiological chemistry for the last three years, during which he has endeared himself to all of us, has resigned to take the professorship of physiology at the New York University and Bellevue Hospital Medical School. Much as we regret these departures, we feel that the scientific standing of our laboratories is so high that there will be no difficulty in securing able and competent men for these two vacancies, and that the laboratory work in the future will be as thorough and complete as it has been in the past.

Having given this brief review of our assets and results, does not the reciprocal thought come to you—what are the alumni of the Albany

Medical College doing for their Alma Mater? The fond and wise parent desires only the honorable success of her children, and in their good fortune and fame takes a justifiable pride—, content to receive the loving respect due her position, and hopeful that the heritage of a good name will be passed on to succeeding generations. Your Alma Mater glories in your fame, rejoices in your success and is jealous of your good name. Your success, fame and good name are her reflection in the mirror of life.

As the tree is known by the fruit which she bears, so you are the fruit by which the reputation of this institution stands or falls.

The loved parent is never the beggar or the recipient of charity from her children. She often presents, however, the opportunity for affectionate generosity and filial return. Your Alma Mater proudly holds up her head, conscious of her own good name and your success, and believes that in good time her children, appreciative of their opportunities, will hasten to lay at her feet tokens of their affection.

The faculty also wish me to anticipate the proceedings of this afternoon, and to present to you for membership in this association the members of the graduating class. They believe that these candidates have been well trained, know that they are upright and manly, and assure you that they are worthy to be members of your honorable association.

On motion of Dr. Adam G. Myers, the thanks of the Association were tendered Professor MacFarlane for his address and a copy was requested for publication.

Dr. Charles B. Tefft then moved that the President appoint a committee of five to nominate officers for the ensuing year. Carried. The President appointed as such commitee: Drs. Charles B. Tefft ('64), James Selkirk ('84), Daniel C. Case ('70), Arthur Sautter ('94), and Thomas Wilson ('74).

The Recording Secretary presented the

## Report of the Executive Committee and Recording Secretary.

Three meetings of the Executive Committee have been held during the year. At the first meeting, held June 18, 1903, the recording secretary was authorized to publish the minutes of the thirty-fifth annual meeting of the Association in the Albany Medical Annals, and to provide reprints for distribution to the members of the Association in the usual way. The treasurer was directed to pay the cost of the reprints and of the envelopes for mailing. It was announced that the reprints would be mailed with the College catalogues, the postage being paid by the faculty. Dr. Bedell reported for the committee on entertainment on Alumni Day, stating that a balance of forty-one cents remained on hand after all bills had been paid.

The second meeting of the committee was held on February 10, 1909, and the treasurer reported a balance on hand of $132.28. After thorough

discussion a plan for entertainment for Alumni Day was outlined and a committee of arrangements of five members was selected by the President to carry out the details of the program.

The third meeting was held on April 16, 1909, when the report of the committee on arrangements was received, and various necessary resolutions adopted to enable the committee to carry out the plan for the day.

On motion of Dr. Willis G. Tucker, the report of the Executive Committee was accepted and ordered entered upon the minutes.

The Treasurer, Dr. Robert Babcock, presented his report for the year as follows:

### Treasurer's Report.

Cr.

| | |
|---|---|
| Balance on hand May 1, 1908 | $95 28 |
| Dues received during year 1908 | 205 00 |
| Total | $300 28 |

Dr.

| | |
|---|---|
| Various bills paid for which vouchers are presented | $168 38 |
| Balance on hand May 1, 1909 | $132 28 |
| College Building Fund | $122 29 |

[Signed] Robert Babcock.
*Treasurer.*

On motion of Dr. Leland O. White, the Treasurer's report was referred to an auditing committee, consisting of Drs. White, H. F. C. Müller and Adam Y. Myers, who subsequently reported it correct. The report of the Auditing Committee was received and the committee discharged, and the report of the Treasurer was accepted and ordered placed on file.

The President's address being the next order of business, Dr. Tucker, an Ex-President of the Association was called to the chair and President Brewer delivered the following address:

### President Brewer's Address.

*Fellow Alumni:* Realizing as I do that being elected to the office of President of this Association, does not necessarily declare one's fitness for the position, I nevertheless assure you that I appreciate the honor and privilege thus thrust upon me. As the nominating committee so well know, it came to me entirely unsought and unexpected. I deem it an honor because of the high standing which the Albany Medical College

merits and holds among its sister colleges and the examining boards of the different states in the Union. I rate it a privilege because of the opportunity afforded of addressing so many professional men, brothers, all recognizing one common mother. Yet we, gathered here to-day, are but a handful as compared with the whole number of graduates sent out from this college. When we consult the records and find that there have been 2,654 graduated and our secretary has the address of 1,491 we realize that we are getting to be a large family. In glancing at these figures the question at once suggests itself, ought we not to have a greater number present at these annual gatherings? It is a day of freedom from active, perplexing work and dull carking care; a day for friendly greeting face to face; to give and receive cheer, in fact it is a composite day of reunion, retrospection and rejuvenation. If in addition to the benefits already mentioned, we can take home with us new inspiration and higher ideals in our life work, the day will have been well spent. I want to speak for a few minutes on some of the Privileges, Opportunities and Responsibilities of our profession. In what I have to say I shall not attempt a strict classification under any one of these headings alone for I can easily see that some of the subject matter might be included in either one or all three combined. We are indeed highly privileged to live in this 20th century, in which such wonderful strides have been made in medical education and knowledge. The fascinating studies with the microscope and in the chemical and pathological laboratories; the demonstration and exploitation of the bacterial origin of disease, the ability to analyze the different fluids, excretions and secretions of the body and to illuminate its various cavities and tissues; these have each contributed in great measure toward the locating of disease, and taught us much as to its etiology. In the domain of surgery there seems to be no cavity or vital organ of the body, too sacred for its invasion with impunity, and the long period of pus and discharge following operation is now practically unknown. The education of asepsis has spread from the profession to the laity, so that as families and commonwealths, we are living cleaner than we were fifty years ago. Asepsis is a grand word to have ever before us as an ideal in our life work. The public rightly accords us the distinction of being leaders and teachers in matters of health and physical well being. The abundance of good medical works and the numerous medical journals, with their reports of societies for research and investigation, keep us in touch with the best minds at home and abroad. So it comes about that if we are interested in any particular medical subject, there is no difficulty in obtaining information regarding it. Wealthy men, even among the laity, are endowing institutions for pathological research, thus establishing the fact that the public is anxious to work with us in stamping out disease. The trend in medical education is toward a higher level. Not satisfied with simply repair work, treating disease, but is giving much more attention to preventive medicine or forestalling disease. The practice of medicine has always been called an art rather than a science, but is daily more and more nearly approaching a science. As we have indicated, this is indeed a wonderful age of advancement and privilege and we all take

pride in it. With all due appreciation of the value and kind of work being done and without wishing to detract from or minify its importance, I would like to ask, may not a word of caution or suggestion be allowable? Is there not the possibility that too close absorbing attention to man and his processes as viewed through the microscope and in the laboratory may delimit our vision? Ought we not, occasionally to take a little respite from this intensely charged scientific atmosphere, remove our lenses for close vision, rub the wrinkles away from our brows and walk out into the clear air and open fields of mental vision where we can take a broader and clearer view of man, until he stands forth in his ensemble, a wonderful union of physical, mental and moral qualities and capabilities. The more we contemplate this wonderful piece of mechanism, the greatest work of a Divine Creator, the more we shall become impressed with our high privilege and responsibility in caring for it. To build up an ideal man or a truly strong nation, none of these three factors can be neglected. The physical, mental and moral are so interwoven and interdependent that they cannot be separated. If we are truly interested in man as thus presented, and are loyal to the instincts of our profession, our next query might be, Is there any disease that threatens this threefold nature, and is there anything for us to do to avert the wreckage of this sublime structure? If I were to answer this question, I would say, "Yes." The disease is alcoholism and there is much that we can do to prevent it. I am well aware that the action of alcohol in the human system is a moot question. It is being discussed pro and con. It is a problem that has vexed the ages and has yet no universally accepted solution. In the light of its physical effects alone, as a factor causing disease, suffering and death it should demand our consideration and study as medical men. I think there have been two reasons in the past, neither of which was wholly tenable, that have kept us from taking up our duty in this matter. The first was that the subject was so largely handled by radicals, fanatics, and effeminate weaklings redolent of sentimentalism, that our more conservative natures rebelled against entering the field of investigation with them. The second reason, and I dislike to admit it, was, that so many of our friends, our clientele—and perhaps ourselves, used alcoholic stimulants in one form or another and seemed to derive pleasure and gratification from its use. At the present time much earnest work is being done by educated professional men to furnish us with scientific facts in this connection. This list of workers includes chemists, microscopists, physiologists, psychiatrists, alienists and practitioners of medicine. The American Society for the study of alcohol and other drug narcotics, was organized in 1870 and was the first medical association in the world to take up the study of alcohol and the diseases following its use, from a scientific point of view. At a recent meeting of this society, held in Washington, D. C., there were thirty papers contributed by physicians occupying positions of trust and responsibility. Quite a number of them were professors in medical colleges, others were editors of medical journals. There were also some noted surgeons in the list. Surely no one would think of classing these as religious dyspeptics, erratic in judgment, be-

cause of a limited diet, they are good, strong, red-blooded men. The investigations now being carried on, the results and statistics submitted, seem to be from reliable sources, they are a product of unprejudiced minds. These men are doing a good work for the cause of health. Their influence is upon the right side but the number of workers as compared with the whole number of physicians, is but a very small per cent. As one of the former editors of the *N. Y. State Journal of Medicine* said in an editorial, entitled "The Seven Deadly Sins of Civilization," "of alcohol, none can dispute the contention that it has a well-earned place among the deadly sins of civilization. One of the greatest reproaches to medicine is that, as an organized art and science, it has not taken a stronger stand against this evil, which among ourselves we know to be a large factor in the product of degeneracy and in depreciating the physical and moral stamina of the race." Under another heading he says, "We have learned much of alcohol in recent years, but we have not given the public the benefit of our knowledge. We have steadily diminished the amount of alcohol used in our hospital wards until it has become almost obsolete as an internal remedy, but still the public has continued to judge the medical profession's attitude toward alcohol by the copious prescribing of it in the past and by what it sees of the doctor's habits at his club. So far as the public goes, alcohol is still approved by the medical profession. It is time to set the public straight in this matter and if we have not agreed to cast it out entirely much good would come if the public could know that it is now but comparatively little used as a medicine." These words just quoted, it seems to me, are very true and timely, setting forth our attitude as well as our duty. None of us medical men would admit that we were not aware of the irritative action of alcohol upon the mucous membrane of stomach and intestines, also upon the structure of kidneys, liver and heart, producing serious, if not fatal, diseases of those organs. We also regard alcoholism as a predisposing cause of tuberculosis and a serious handicap to recovery in pneumonia and serious surgical operations. Our brother Alumnus, Dr. T. D. Crothers, computes that 10 per cent. of all mortality is due to the abuse of alcohol, and 20 per cent. of all diseases is traceable to this cause. A noted philosopher once said, "The greatest thing in the world is man, and the greatest thing in man is mind." We commonly speak of the brain as the organ of the mind. What does alcohol do to the brain? It produces a pathological change in the walls of the blood vessels by the irregular and convulsive flow of the blood currents. It may for a time give increased functional activity but this is followed later by organic changes which extend to the brain cells themselves. The result of this degenerative process in the brain interferes with its functioning, disturbs the correlation of ideas and emotions, restrains inhibition, thus permitting acts which constitute crime and insanity. The statistics from seventeen prisons and reformatories show alcohol as a first cause of crime in 31 per cent. Statistics from other sources, show that it ranks next to heredity as the most common cause of insanity, 22 per cent. of all male cases being charged to its use. We know that a large number of suicides are

due to this agent. If we object to accepting these statistics as convincing, let us quietly think the matter over as connected with our own professional knowledge and experience. If we would for a year tabulate our cases of disease, suffering, crime or death, that we were willing to ascribe to alcoholism, we would more fully realize its baneful influence. There is one class of alcoholic users that I think has largely increased during the last few years. I refer to its use by the female sex. They form the habit, partially from its use at social functions and partly from its use as a stimulant to recoup the tired and sensitive nervous system. I find that many of our cases which are termed neurasthenia, have as a prominent accompanying factor, if not as a primary cause, the alcohol habit. Its use by women seems the more deplorable in that her future progeny is liable to inherit an unstable nervous system, with quite a predisposition to epilepsy and idiocy. The strenuously active conditions of modern American life seem to develop a nervous organization which responds quickly to the use of alcohol and the beginner passes more rapidly through the stage of moderate drinker to the confirmed inebriate than does his more phlegmatic brother across the water. It seems to me that if we physicians are perfectly honest with ourselves, we have a responsibility here which we cannot shirk. We should possess ourselves of the facts that have been proven as to the destructive action of alcohol on the delicate cell structures of the body. This surely is within our province and if we are convinced that it is a cause of much suffering, disease and death, it is our duty to teach this truth to the public that the very beginning of alcoholism may be avoided. Let me go one step farther; we cannot say to the public, alcohol is a powerful protoplasmic poison, if used to excess, it will ruin man, physically, mentally and morally; it will transmit its cicatrices to his offspring, and mould them as slaves instead of freeborn, all of this, and more it will do for the laity but we physicians and our families are immune. No! We must apply the same principles of prevention in our own habits and the public will see that we believe and practice what we teach. Let us each and all measure up to our privilege, opportunity and responsibility, thereby helping to benefit the individual, the family and the race.

In the words of Maltby Babcock,

> Be strong! We are not here to play, to dream, to drift,
> We have hard work to do and loads to lift.
> Shun not the struggle, face it. 'Tis God's gift.
>
> Be strong! Say not the days are evil,—Who's to blame?
> And fold the hands and acquiesce—O shame!
> Stand up, speak out, and bravely, in God's name.
>
> Be strong! It matters not how deep entrenched the wrong,
> How hard the battle goes,—The day, how long.
> Faint not, fight on, to-morrow comes the song.

JUST A FEW WORDS TO THE CLASS OF 1909

This to you is a very auspicious day. One to which you have looked forward with mingled emotions of pleasure and anxiety. Perhaps at times, within the past four years you have doubted your ability to exist until this day should arrive. To you it is not so much a day of reunion as it is of mustering in to the actual service. You remind me of a fine company of military recruits. You have been instructed for the last four years in the tactics of warfare. Been put on picket duty, taught to use your eyes and ears in recognizing the foe, learned what weapon to use and the quantity of ammunition. Have been told about building temporary bridges and throwing up fortifications, have studied methods of reconnoitering, including aerial investigation. Have learned to present a good front for inspection on parade, and now in the glorious strength of your young manhood, are eager for the fray. So far you have had very little to test your real bravery or endurance. Now comes the trial. There is not only the noise and smoke of battle to face but there is also the enemy with the noiseless gun and smokeless powder whose very quietness may permit deadly work to be done before you discover the foe. You have been drilled in squads under commanding officerss, now you are liable to have to fight single handed, issuing and executing your own orders under the impulse of the moment. Instead of the few hours devoted to drill and instruction followed by regular hours of rest, you will experience protracted and arduous service with little or no chance for repose. These tests of your courage, alertness, self-dependence and endurance will develop you into efficient and well-seasoned workers in the field you have chosen.

*Gentlemen of the Class of* 1909, it gives me great pleasure to welcome you into the Alumni Association of Albany Medical College.

Thirty-seven comrades, young and strong,
  Enter our ranks to-day,
Term of enlistment is how long?
  It is for life, you say.

May your courage increase with years,
  Your ardor never grow less.
Realization, banish your fears,
  Your lives be pronounced a success.

The members of the Class of 1909 were present in a body, and rose as the President addressed them at the conclusion of his address, and received them into membership in the Association.

Dr. M. M. Lown moved a vote of thanks to the President for his interesting address, a copy of which he was requested to furnish for publication in the ALBANY MEDICAL ANNALS. Dr. Tucker put the motion to a vote, and declared it unanimously carried.

The report of the Historian of the Association, Dr. Bedell, was then presented and ordered entered on the minutes.

## Report of the Historian, Arthur J. Bedell, M. D.

*Mr. President and Fellow Alumni:* The first class graduated from Albany Medical College on April 24, 1839, so that to-day we celebrate the seventieth anniversary of that event, although this is the seventy-eighth commencement and it is fitting, appropriate and timely that we have admitted to our body the best equipped class to have left these sacred halls in all these seventy years. The men of 1909 have had more thorough instruction, have come closer to actual disease and have been enabled to appreciate their future life better than any other class. We, as an association, will get the inspiration of their youth with its attendant uplift.

To maintain our association records it is important that every member of this body report by letter any change of address, any appointments of civic or professional nature, membership to societies and other honors. It is earnestly hoped that those who have not sent such notices will do so and form the habit. These items will appear in our association journal, the Annals.

The past year has shown the same steady advancement in higher medicine as evidenced where ever our graduates practice.

Since our last meeting thirty-three have passed to their well earned reward.

### Necrology.

R. F. Stevens ('41), of Lysander, N. Y., reported dead.
S. J. Cheseborough ('44), of Syracuse, N. Y., reported dead.
C. H. Roberts ('46), at Cedar Glen, N. Y., February 12, 1909, aged 83.
B. S. McCabe ('50), at Greenville, N. Y., March 16, 1909, aged 84.
H. T. Hawley ('51), at Freelands, Mich., in 1887.
H. M. Weedon ('55), at Eufaula, Ala., September 10, 1908, aged 74.
L. Cross ('56), at Cobleskill, N. Y., April 26, 1909, aged 75.
A. Middleditch ('56), at Pasadena, Cal., April 26, 1909, aged 80.
H. McG. Wilson ('57), at Los Angeles, Cal., August 15, 1908, aged 65.
J. K. Haynes ('58), at Hoosick Falls, N. Y., August 27, 1908, aged 84.
J. P. Bidwell ('60), of Morrisonville, N. Y., reported dead.
DeW. C. Beebe ('63), at Sparta, Wis., July 4, 1908, aged 70.
E. V. Stoddard ('63), at Rochester, N. Y., June 6, 1908, aged 68.
B. R. Holcomb ('64), at Whitehall, N. Y., January, 1909.
J. W. Freeman ('64), at East Saginaw, Mich., May 3, 1909, aged 80.
E. I. Wood ('65), at Stillwater, N. Y., November 27, 1908.
C. E. Witbeck ('66), at Cohoes, N. Y., May 13, 1909, aged 65.
E. J. Dickinson ('66), at Corydon, Ia., April 16, 1909, aged 71.
G. S. Hulett ('67), of Arcade, N. Y., reported dead.
I. S. Lowell ('71), at Galesburg, Ill., November 19, 1908, aged 66.
G. B. Murray ('73), at Sandy Hill, N. Y., February 10, 1909, aged 65.
H. S. Edson ('77), at Cortland, N. Y., September 19, 1908, aged 73.

J. C. Shiland ('78), at Watervliet, N. Y., September 24, 1908, aged 53.
H. LaHann ('78), at Burlington, Wis., December 16, 1908, aged 52.
C. E. Parrish ('80), at Maryland, N. Y., August 15, 1908, aged 52.
G. H. Van Wagner ('81), at Wappingers Falls, N. Y., March 19, 1907.
F. T. Kunker ('83), at North Chatham, N. Y., March 25, 1909.
M. D. French ('87), at Lebanon, N. Y., January 9, 1907.
B. L. Goldthwait ('92) at Schenectady, N. Y., June 17, 1908, aged 41.
H. O. Fairweather ('96), at Troy, N. Y., April 8, 1909.
A. J. Ronan ('97), at Albany, N. Y., May 27, 1908.
H. L. Wood ('99), at Groton, Conn., May 14, 1908.
O. C. Curtis ('05), at Bristol, Wis., November, 1908, aged 27.

*Mr. President and Gentlemen:* I have the honor of presenting the histories of the Class of '39, '49 and '59; Dr. Wm. H. Murray presents that of '69; Dr. Sheldon Voorhees of Auburn, '79; Dr. A. H. Bayard of Cornwall-on-Hudson, '89, and Dr. Joseph A. Lanahan, that of '99.

## REPORT OF THE CLASS OF 1839.

The Class of '39 consisted of thirteen members and as shown below all have died.

Jared Bassett, at Evanston, Ill., died May 10, 1905, aged 91.
Nahum P. Monroe, died April, 1873.
Wm. H. Snyder, Jr., at Troy, N. Y., died November 19, 1901, aged 87.
Rial Strickland, at Enfield, Conn., died December 5, 1903, aged 89.
Phineas H. Strong, at Buffalo, N. Y., died February 10, 1890, aged 73.
John Vought, at Freehold, N. J., died May 21, 1882.
Gilbert H. Brownell, no record.
Henry Cartier, no record.
Alfred Cook, no record.
Anderson L. Dean, no record
John V. Newman, no record.
Marcus T. Peake, no record.
Almon P. Edmonds, no record.

## REPORT OF THE CLASS OF 1849.

Dr. Wm. C. Wey gave the last report of the Class of '49 in 1889. Since that time he has died and as far as known there is no living member of the class, although we have no record of several of the members. There were twenty-six graduates, sixteen are known to have died and of ten we have no records.

Arlington Boyce, at East Schodack, N. Y., died April, 1896, aged 73.
Daniel G. Dodge, died December 30, 1877.
Wm. Fitch, died at Dryden, N. Y., September 14, 1893, aged 74
Abram Groesbeck, died at Chicago, Ill., November 25, 1884, aged 74.
Samuel Ingraham, died.
Stephen C. Johnson, died at Luzerne, N. Y., January 27, 1903.
Jas. Duane Jones, died December 31, 1879.

Edward McCamus, died.
Jas. H. Scoon, died July 22, 1880, at Amsterdam, N. Y.
L. Mosley Smith, died April 25, 1889.
Paul Todd Tabor, dead.
Geo. M. Temple, died at Bridgeport, Conn., September 6, 1888, aged 65.
Wm. C. Wey, Elmira, N. Y., died June 30, 1897, aged 68.
Samuel Oakley Vander Poel, died at New York City, March 12, 1886.
Lathrop A. Willis, died at Brooklyn, N. Y., January 2, 1885, aged 61.
Ira Zeh, died May 25, 1872.
Geo. W. Conkling, no record.
Simeon Curtis, no record.
John Duffin, no record.
Thos. C. Howes, no record.
Oliver B. Nelson, no record.
Adelman D. North, no record.
Allen F. Patch, no record.
Rensselaer R. Sherman, no record.
Allyn Wheeler, no record.
Cornelius S. Younglove, no record.

## REPORT OF THE CLASS OF 1859.

Of the forty-two men that graduated five are known to be living, twenty are known to have died, and of the remaining seventeen there is no record.

Newton H. Adams, died at Washington, D. C., November 17, 1869.
Chas. H. Allen, died in February, 1875.
John Birdsall, died at Newburgh, N. Y., February, 1863.
Jeptha R. Boulware, died at Albany, N. Y., October 17, 1887, aged 67.
Lester R. Carrier, died 1861.
Norris M. Carter, died at Brooklyn, N. Y., August 11, 1893, aged 55.
Nelson Fanning, Jr., died May 17, 1904, at Catskill, N. Y.
Mahlon Felter, died October, 1905, at Troy, N. Y.
Geo. H. Fossard, Brooklyn, N. Y., died May 10, 1907.
Henry L. Horton, died February 24, 1885, Rome, Italy.
Martin L. Mead, Highland Lake, Colo., died September 5, 1899, aged 65.
Cornelius D. Mosher, died at Albany, N. Y. September 26, 1890, aged 61.
Reuben F. Parkhill, died January 25, 1906, at Howard, N. Y.
Daniel Small, died at St. Johnsville, N. Y., about 1891.
Chas. H. Smith, died two days after graduation.
Ira Smith, died May 26, 1905, at Bath, N. Y.
Geo. Spafford, died June 18, 1906, at Cavendish, Vt.
Jas. Sweeney, died at Brooklyn, N. Y., February 18, 1892, aged 54.
Lyman M. Tuttle, Holyoke, Mass., died April 26, 1897.
Isaac L. Welsh, died June 23, 1878.
Harvey N. Austin, no record.
David Curry, no record.
J. Lawman Everitt, no record .
Addison L. Harlow, no record.

Jas. M. Harper, no record.
Wm. A. Herrick, no record.
Wm. M. Hughes, no record.
Nathaniel Jennings, no record.
Stephen P. Johnson, no record.
John T. Meyers, no record.
Wm. A. Madill, no record.
John Sheriff, no record.
Eli Small, Jr., no record.
Wm. B. Toole, no record.
L. Howard Udell, no record.
John J. Van Rensselaer, no record.
Theodore C. White, no record.

Dr. C. H. Burbeck, of 91 First street, Troy, N. Y., writes:

"I was born at Canajoharie, N. Y., February 8, 1837. Received my education in the district school, Canajoharie Academy and Carlisle Seminary. Attended a practical course of lectures in 1856, took full course 1858 and 1859, graduating in December of the latter year. I was appointed house physician and surgeon in 1860, serving one year in Albany Hospital. At the breaking out of the Civil War passed state examination for assistant surgeon New York State Militia. I served as contract surgeon about ten months and was commissioned assistant surgeon 60th Regiment N. Y. Vol. Infantry. Served in Virginia in all the battles in which the 12 A. C. were engaged until after the battle of Gettysburg. Soon after the last battle went to the relief of the Army of the Cumberland at Chattanooga. Was in the night engagement at Wauhatchie. Was in "Hooker's battle above the clouds." I was commissioned surgeon of the 102nd Regiment N. Y. Vols. Marched to the sea with Sherman's Army, appointed surgeon in chief of 3rd Brigade, 2nd Division 12 A. C. Marched with the army across South Carolina, North Carolina and Virginia to Washington, D. C. Have been a resident of Rensselaer County since 1867."

Dr. Henry H. Carpenter writes from Lawrenceville, N. Y.:

"I class myself among the ordinary practitioners of medicine and surgery. I resided in Glens Falls, N. Y., before I graduated and since graduation my home has been in this town nearly all the time. My wife, son and daughter are living. On the 29th day of August, 1862, I was mustered at Albany, N. Y., into the 106th Regiment N. Y. Vol. Infantry as assistant surgeon. In March, 1865, I was promoted and mustered near Petersburg, Va., into the 43rd Regiment N. Y. Vol. Infantry as surgeon. On the 8th day of July, 1865, at Albany, N. Y., I received my final pay and a certificate of honorable discharge."

Dr. S. H. French, 40 Church street, Amsterdam, N. Y., writes:

"I graduated from the Albany Medical College December 11, 1859. February 1, 1860, I commenced the practice of medicine in Slaterville, N. Y. After a little less than two years I moved to Lisle, N. Y., where I practiced until July, 1862, when I was commissioned one of the medical

officers of the 109th N. Y. State Volunteers. After serving two years I was discharged from the service on account of sickness and returned to Lisle, N. Y., where I remained until November, 1871, when I moved to Amsterdam, N. Y., where I have since resided. I was health officer of the City of Amsterdam for several years and am consulting physician to the Amsterdam City Hospital. I have never held any political offices. In 1868 I married Miss Mary A. Hurd of Colesville, N. Y. Our only child, Charles E. French is treasurer of Amsterdam Savings Bank. I was one of the founders of the Amsterdam Public Library and have been its president for many years. I was one of the founders of the Amsterdam Savings Bank and have been president ever since it was organized in 1887. In politics I am a Republican when the party puts up a good man. Otherwise I am a "mugwump." In religion I am a Methodist. Chief recreation, collecting butterflies. Am neither rich nor poor."

Dr. Wm. E. Johnson writes from Waverly, N. Y.:

"After receiving my degree as Doctor of Medicine, dated December 27, 1859, from the Albany Medical College, I commenced my professional career in the early spring of 1860 at Waverly, N. Y. At the call of President Lincoln in 1861 for seventy-five thousand men to defend our country in the rebellion, made application for examination to qualify as surgeon during the war. Passed the examination successfully and appointed by the governor examining surgeon for enlisted men recruited from the (now 38th) senatorial district with headquarters at Binghamton, N. Y. This duty performed was commissioned surgeon 109th Regiment N. Y. Vols., and served during the war in various assignments, viz.: Surgeon of Post Hospital on Masons Island, D. C., Annapolis Junction, Laural Factory and Beltsville, Md. In the field during Grant's Campaign, Army of the Potomac, Brigade Surgeon, Operating Surgeon in Chief, 3rd Brigade, 9th Army Corps and Executive Officer 9th Army Corps Base Hospital at City Point, Va. After the surrender of Lee returned to Waverly, N. Y., and resumed practice. Public positions. Served three terms as Village President, Presidential Elector in 1888 for Benjamin Harrison, Surgeon in Chief of Robert Packer Hospital, Sayre, Pa., President U. S. Pension Board four years, represented the 38th Senatorial District at Albany, N. Y., 1895-1900, served as Chairman of Committee on Military Affairs during the Cuban War and Chairman of Public Health. At the end of the term in Senate appointed Secretary State Department of Health serving four years. Vice-President Citizens Bank of Waverly, N. Y., and President of Waverly Building and Loan Association at present date. Retired from active practice of medicine, January, 1909."

Dr. Wm. H. Thomson is now practicing at 23 E. 47th street New York City.

Respectfully submitted,

A. J. Bedell,

*Historian, A. A. A. M. C.*

## REPORT OF THE CLASS OF 1869.

There were twenty-eight good men in Class of '69. Eleven are alive; of two we have no record. David A. Lawton and Carl S. Metcalf. Fifteen are dead: Drs. Ebell, Hunt, Wands, Bosworth, Briggs, J. M., De Zouche, Griffin, Longendyke, Morgan, Schureman, Shurtleff, Smithwick, Sturdevant, Zeh and Henry S. Reid. We have received letters from Dr. Solon Briggs, J. Reid Davidson and C. A. Carpenter. All were written asking a reply, only three responded.

Dr. Solon Briggs, Pasadena, Cal., writes:

"I remember you very well and was very glad to receive yours of 4th coming as it did by way of New York City. I have been settled here nearly fifteen years (came in October, 1894), I came here on an errand of mercy but found the joys of living here so much enhanced that I have never thought seriously of going back to stay. Much as I would delight to accept your invitation to be with you I am obliged to send a word of greeting instead. My fond recollections cluster around Albany. I had intended last May when we started via Chicago, A. M. A., to have taken in Albany in our trip which took in the Tuberculosis Congress at Washington, D. C., but a severe illness overtook me in Jacksonville, Ill., where I was in the hospital over five weeks. I was glad to get back, July 5th, where climatic conditions are more congenial. Dr. Hewitt visited us a year ago when we rehearsed the past to our mutual pleasure. I had great delight in entertaining Professor Vander Veer the past winter, to a small degree. I was always very fond of him and rejoiced over the honorable position to which he has attained. It hardly seems possible that we are in the fortieth year of our professional life. I have realized a reasonable success in life as the world see things and though I passed my 64th birthday this April 15th, still I feel young, weigh 194 lbs., sleep and eat well and feel well. I looked in vain for a photo of myself and my home but the best I can do now is to enclose a page from a paper published in 1904. I sent a photo to the publishers of the forthcoming volume of Albany Medical College graduates. After two years of loneliness I married Miss Susan Martin of Lancaster, Pa., whom Prof. Vander Veer met when here. I wish you all a joyous occasion and commend to you all the 'Hope' that 'is big with immortality.' I shall hope to hear of your proceedings and read once more of the dear old boys."

Dr. C. A. Carpenter, writes from Cambridge, Mass.:

"Your note of the 5th was a great surprise to me for it informed that I had been in practice forty years. I could not believe it so I figured it out, 1909—1869=40 years, sure enough it is so. Well I have spent my medical life as follows: two years in Albany, eleven years in Plattsburgh, N. Y., twenty-seven years in Cambridge, Mass. I have always enjoyed my profession and have had a fair and even success. I remember you well, though I have not seen you since graduation. Hyde lived near me at Plattsburgh, and is in Plattsburgh now. I have never met any of the others. Will look with interest for the report of the class. With kindest wishes for all, I am."

Dr. J. R. Davidson, South Bethlehem, N. Y., writes:

"I am in receipt of your favor of May 8th. Seems very strange that you and I should live within ten miles of each other for forty years and never meet, but it is. I am no older than I was forty years ago, can have just as much fun as any other man. I hope to meet you all on the 18th."

Dr. W. H. Murray has been in Albany since graduation and has recently moved to his new home on Hudson avenue. Time has dealt kindly with him.

Respectfully submitted,
William H. Murray,
*Historian Class of 1869, A. M. C.*

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## REPORT OF THE CLASS OF 1879.

*Mr. President and Gentlemen of the Alumni:* The Class of 1879, after thirty years, has a record of fourteen dead and twenty-nine living. Letters have been received from twenty-seven. Dr. Charles Franklin Huddleston and Dr. William Bassett Fish have no address by which we have been able to locate them. Any information regarding either of them will be very gladly received. Nine of the class are here to-day to testify to their love for the old college and to express their feeling of gratitude to those members of the faculty of 1879 who are still living, for the instruction, encouragement and kindly aid which they gave us in generous measure. I may say, for the twenty who are not here, it is not from lack of either love or gratitude.

Members who have died to May, 1909:
Dr. Menzo Barkman, August 10, 1902.
Dr. Charles Spencer Burnett, December 23, 1899.
Dr. Kenyon A. Bushnell, December 23, 1896.
Dr. Sanford J. Engel, February 1, 1899.
Dr. Hezikiah Delorous Fuller, March 20, 1907.
Dr. Albert Drury Hill, March 4, 1906.
Dr. John T. Keay, January 4, 1881.
Dr. Henry Webster Lawrence, January 16, 1889.
Dr. Robert Addison Linendoll, July 9, 1899.
Dr. Otto Ritzman, August 18, 1889.
Dr. James Alexander Smealie, November 25, 1905.
Dr. Martin Tygert, January 18, 1900.
Dr. George Henry Watson, May 26, 1907.
Dr. John Joseph White, January 24, 1887.

### George Henry Watson, A. B., M. D.

Dr. Watson died in Brooklyn, N. Y., May 26, 1907, of valvular disease of the heart. He was graduated from Albany Medical College with the Class of 1879. He was born in Sedgwick, Me., August 1, 1847. He pre-

pared for college at Hebron Academy, Hebron, Me., and entered Amherst College in 1866, graduating with the Class of 1870. Before coming to Albany he had taken one course at Bellevue Medical College, New York, and one course in Jefferson Medical College, Philadelphia, Pa.

After graduating at Albany, he practiced in Halifax, Mass., until 1883, when he removed to Bridgewater, Mass., where he practiced until 1899, when on account of ill health he retired from practice. In 1900 he married Miss Alice W. Soule, of Halifax. The same year they made their home in Brooklyn, N. Y. He is survived by Mrs. Watson and one sister, Miss Laura S. Watson.

Dr. George Mann Abbott, Saranac Lake, N. Y., writes:

I shall try to attend the next meeting of the Alumni, and hope you will make a special effort to bring the living members of our class together. Just a word as to some incidents in my medical experience. Soon after I was graduated I located in Bath on the Hudson, now Upper Rensselaer, N. Y., and I practiced there until the fall of 1882, when I moved to Castleton, N. Y., practiced there with a good degree of success until 1900 when, from overwork my health began to fail, and I came to Saranac Lake. It took me three years to recover my health. Since that time I have been practicing here with good success.

My family consists of my wife and one daughter.

Dr. E. A. Bartlett, Albany, N. Y.:

I may say: Here I am in the same old place, doing the same old thing in the same old way, and just as happy as I ever was. Our only son is married and gone to his own little home leaving the two "old people" to peg along as usual.

With good health myself and enough of the ill-health of others to look after why should one not be happy? Our Alma Mater is flourishing like the green bay tree.

Dr. Edward Everett Brown, Phelps, N. Y.:

I am still able to call back out of the dark in a still small voice that I am here still. I am seventy-five years old, and practice none. If a man could only pass along and not grow old. Kindest regards to all.

Dr. W. C. Crombie, Mechanicville, N. Y.:

Still doing business and in good health. I shall certainly be at the class reunion.

Dr. C. J. Dickson, Bovina Center, N. Y.

Am still at this town where I was born. Have five children, one boy at college, a daughter who will enter college in the fall and another daughter in the third year High School, and two little ones who have never been at school. Have formed a partnership with my brother at Oneonta and have two drug stores, one at this town and the other at Oneonta, N. Y. Often think of the boys but seldom meet any of them. Have had

fair success, good health and many happy days, and no reason to make much complaint. Remember me kindly to the Class.

Dr. E. F. Fish, Milwaukee, Wis.:

You want to know something about myself. I am truly sorry that I cannot meet with the boys this year. The fact is that I do not expect to ever again meet any of my classmates. I am still in Milwaukee, and will probably die here. For fifteen years I have held the chair of Gyuecology in the Medical Department of Marquette University of this city, formerly the Milwaukee Medical College. One year ago last October just after finishing an abdominal hysterectomy in clinic I collapsed physically, and doubt whether I ever will be able to walk again. I never have seen the patient since the operation although she made a complete recovery. My trouble was and is a multiple neuritis, and I have been confined to my house just sixteen months. I am unable to walk and my limbs are still sore. At present I am giving the animal extracts a trial. The prognosis is all against me. I have been forced to resign my professorship and am now emeritus professor. Aside from this I have had a pretty successful career, so when I am needed in Eternity I will be found awaiting the summons without a regret. I have a wife and a little six-year old son.

I sincerely trust that you will have a successful meeting, and that the spirit of good fellowship will prevail. "It did." Remember me to Drs. Vander Veer, Bigelow, Boyd, Tucker, Ward, Hailes, Merrill, Curtis, et alia. At this moment I do not recall other living names of the faculty of that day. Drs. Mosher, Swinburne, Webster, Hun, Vanderpoel, Perkins and Robertson have joined the big majority, so "fare thee well! and if forever, still forever, fare thee well."

Dr. Allen Fitch, New York City, 38 W. 56th street:

I have been away from home so much in recent years that at times I too have been among those that might be counted as lost. I retired from active practice in 1902, and went to live with my family in Europe, where my three young daughters received part of their education. However, we came back here again late in 1905, and since that time have spent our winters in New York, except this one, the last of which we were in Florida, from which trip we have but just come home. I regret to say that I very rarely have seen a member of the Class of 1879. I would be only too glad to renew old acquaintances, however, and it is just posssible that I may come to Albany on May 18th. In the meantime I wish you all well, and regret that I have never been able to attend a class reunion previous to this.

Dr. C. G. Fisher, Roulette, Pa.:

I am still at Roulette. I have had the misfortune to lose my wife and six children, have one son yet living. I have a good practice. I would be glad to meet all at Albany. With best regards.

Dr. G. W. Gregory, Elmira, N. Y.:

I have been in Elmira since 1895. Am in general practice. Have two children, one son twenty-three, and one daughter twenty. My son graduates as a doctor of medicine this June. My daughter is at home.

Dr. O. J. Hallenbeck, Canandaigua, N. Y.:

Father Time is tightening his grip on the class of 1879, and Eternity now claims about one-third of our original number.

It is very seldom that I meet any of our boys, and yet Canandaigua is still on the map. We flatter ourselves that we have quite a medical town, for one of its size. Two good hospitals, a monthly medical and sanitary journal, and a county bacteriological laboratory are ours.

I am living with the same wife that was my choice in 1880. Four children survive, one daughter and three sons. The eldest son is now in Vienna, Austria, pursuing knowledge in his chosen specialty, viz.: diseases of the nose, throat and ear. None of our children are yet married, although prospects seem favorable. For myself, I am very thankful to say, that I have enjoyed good health, and have worked hard ever since I left our Alma Mater. I am now serving the public as village health officer, President of the Ontario County Sanitary Association, President of the Lake Keuka Medical Society, and am a member of medical societies from Canandaigua Village Medical Society to the A. M. A. I am also a member of our Board of Education, a trustee of Woodlawn cemetery, and last, but not least, an elder of the First Presbyterian Church of Canandaigua. The latch string is always out, boys. Come and welcome.

Dr. O. F. Kinloch, Troy, N. Y.:

Yes, I am getting barefooted where the hair ought to grow, but I still wear that smile. I still practice, but am not "looking up trade" and at the same old spot. Hope to meet all the boys in Albany at the next reunion.

Dr. Henry Lewis, Argyle, N. Y.:

I am still practicing medicine at my old stand in Argyle, N. Y. I must say that I have succeeded as well as one could expect in a small country town with two or three competitors.

Notwithstanding the fact that I lost almost everything by fire in 1899 I have rebuilt and paid for a new home and am out of debt. As I have no children, should my health and strength continue during the next decade I hope to continue my days outside of a charitable institution.

Dr. W. E. Lothridge, Watervliet, N. Y.:

I am still at work where I located twenty-five years ago. Through all these passing years I have had a fair degree of health, and I am not sure but that I feel about as young as I did when we boys used to get together during the noon hour and tell stories drawn from sources both sacred and profane. I am even now at my advanced age occasionally induced to tell a story, but of course it is of a very solemn character. I intend

to be present at the reunion and there meet many of those so closely associated thirty years ago.

Dr. Andrew L. MacMillan, Hanover, Mass.:

I do not know whether there is anything in the history of your humble servant that will be of interest to the Class of 1879. I was with you such a short time it really never seemed to me that I was one of the class. But thirty years brings many changes both of mind and body to all of us. I sincerely wish that I might be with you at the reunion in Albany, and if I can see my way clear will surely do so. I have never been in Albany since we graduated nor have I met any members of the Class of 1879. My mind has often gone back to those days spent there and I have nothing but the happiest recollections of our student days at the old medical school, and for each member of the class. I settled in Barnard, Vt., in April, 1879, stayed there until 1887, married Miss Clara A. Wood in 1880. We have one son, A. L., Jr., born in 1882. He graduated from Dartmouth College in 1905 and will graduate from the Harvard Medical School in June next. We came to Hanover in 1889 and have been here ever since. I have a fine practice. I have been blessed far beyond what I deserve. I have a fine wife and a nice home and one of the best sons that ever gladdened a father's heart. While not rich, enough to keep the wolf from the door and to take care of us in our old age. I am still in active practice, though I realize that the time is fast coming when "us old fellows" will have to sit on the bank instead of being in the current. I have been blessed with good health. I had the misfortune to break my hip two years ago and was out of commission for about six months. I am still quite lame but get about well with the aid of a cane. No high honors have come to me except the feeling that I have done each day's work well to the best of my ability. I was superintendent of schools in Vermont for seven years. Have been chairman of the Board of Health for the past twenty years. Hanover is twenty miles south of Boston. If any of the class should happen in Boston I should be most happy to have a call.

Dr. E. W. Masten, Albany, N. Y.:

Since last report I have married. In 1904 retired from the drug business and am now interested in agricultural matters.

Dr. John McAllister, 259 W. 43d St., New York City:

We graduated in 1879, thirty long years ago, and I started business by opening a little office in the lower part of old Albany, very little money but plenty of theoretical knowledge of medicine and sufficient pluck and assurance to think I knew something of the practice of pills. I made a living almost from the start, and after a few years moved to the central part of the city, and things prospered so well that I took a trip to Europe to perfect myself in my profession, studying principally in Paris, Berlin, Vienna and London. After returning home worked along and when I would make sufficient money would take another trip, so that in a few years I had seen the most of North and South America, as well as Europe, as well as visiting the hospitals and schools of medicine in the various

countries I visited. After the death of my mother in 1895 I came to New York City and entered the Post Graduate School and Hospital for nearly a year, then went to Johns Hopkins Hospital, and after my return to New York City started to teach surgical operations on the cadaver for the New York School of Clinical Medicine; after a year there I did a great deal of private teaching of surgery; then started a school of pathology and operative surgery. In 1899 went to Europe and stayed two years, principally at Paris, Vienna and Rome, also going to India to study the plague, returning again to New York to continue the school of operative surgery, which is still flourishing.

I am and have been surgeon for the N. Y. C. & H. R. R. R. Co. for the past seven years. I married six years ago and have a little boy one year old, and when he is a few years older I will have him helping me to cut up stiffs. I have a magnificent country home of six acres at Scarsdale, one of the swell suburbs of New York, and go to the city and return home every night, and I am absolutely happy and contented and only hope that every member of the Class of '79 is the same. I have held various clinical positions here and have made nearly six thousand post mortems since I have started. I send my best wishes to all the old boys and will try to be with you at the reunion in May.

Dr. W. J. Nellis, Albany, N. Y.:

My life has been an even one, so to speak. I have been fairly successful, am still a bachelor with no prospects of a change of social conditions.

Dr. J. L. Schoolcraft, Schenectady, N. Y.:

I have been in Schenectady since graduation. When I settled here there were about fifteen physicians and 14,000 population. We now have about 75,000 population and over ninety physicians. Two hospitals with over a hundred beds, while at the time of my starting there were no hospitals. I am married and have one son.

Dr. Daniel Sickler, Ogden, Iowa:

I am still in the same place, but expect to remove to a larger town in order to educate my only son who is now fourteen years of age, I have worked hard during the last thirty years, and expect to work for some time to come. I have been quite successful in a professional and business way, and have secured a competence for old age.

Dr. F. E. Simons, Canajoharie, N. Y.:

I settled in Canajoharie where I have been in continual practice. I was married January 1, 1879, so as to have that out of the way, as I decided to locate here before I graduated. Have one son, Dr. W. N. Simons, who graduated from Albany in 1906. He had an appointment at St. Peter's Hospital for 1906, was married January, 1907, and is now located at St. Johnsville, N. Y., nine miles west of here. He had one child, a girl, which only lived six months.

I am company surgeon for the N. Y. C. & H. R. R. R. Co., also

member of the New York and New England Association of Railway Surgeons, member of the Montgomery County Medical Society, and member of the New York State Medical Society.

Dr. F. B. Streeter, Glens Falls, N. Y.:

I am still in practice here in Glens Falls and have been continunusly since our graduation at Albany. With kindest regards.

Dr. P. L. Suits, Tribes Hill, N. Y.:

I am at Tribes Hill where I have been for the past thirty years, and am working and am able to work as hard as ever. We have no children. I intend to attend our class reunion in Albany this spring, and hope to meet many of our classmates.

Dr. T. B. Van Alstyne, Binghamton, N. Y.:

I am in fine health. Feel almost as young as in '79. Am doing my share of work here in Binghamton and propose to continue here at work till the end. I have had my ups and downs, but at present life looks rose colored to me and I feel it is good to be alive. Would like to meet at Albany all of '79.

Dr. Clinton D. Van Dyck, 47 W. 93d St., New York City:

He is a very busy man. Too busy and too modest to write at length of what he is doing. It would do the doctor good if every member of the class would visit him as opportunity offers to bring back to his memory the faces of the 1879 boys.

Dr. Sheldon Voorhees, Auburn, N. Y.:

Is the oldest of the alumni in Auburn. Dr. A. F. Hodgeman '88, Dr. T. C. Sawyer, '94, Dr. W. T. Hudson, '99, and Dr. L. F. O'Neill, 1900, are the others. All are making an earnest effort to do good work.

Dr. Adam Walrath, St. Johnsville, N. Y.:

I have a wife, and one son twenty-eight years old. He graduated at Albany, Class of '05, of which he was president. He has a wife, and one child eighteen months old, and is located at Staten Island, N. Y. I hope to be at Albany May 18th with our class. My good wishes to all.

Dr. A. W. Wilmarth, Chippewa Falls, Wis.:

It is hard to realize that thirty years have drifted by. I wonder if you have changed as much as I. I have nothing new to write. I have spent the last ten years developing the growth of this institution. I would be glad if I could go to Albany this summer, but the thousand miles that intervene is a long distance.

Respectfully submitted

Sheldon Voorhees

*Historian, Class of* 1879.

## REPORT OF THE CLASS OF 1889.

*Mr. President and Gentlemen of the Alumni:*

The middle of January, 1909, it was thought that a report of the Class of 1889 would not be read by your historian, owing to serious illness, but, thanks to the Great Almighty, my life has been spared, and it is with pleasure that I am permitted to again tell you of the doings of the majority of our class.

On March 21, 1889, forty-one received their well-earned diplomas and started out to make history. And I want to say that I believe every one, without exception, has made an earnest effort to be an honor to his class, a worthy member of this association and a credit to the college which he represents.

Ten years ago I reported three deaths:

Dr. J. W. Roscoe.

Dr. Frank A. Bell.

Dr. Hurand H. Hekimiam.

Since that time the following have passed to the Great Beyond:

Dr. James E. Brennan, died March 23, 1900.

Dr. Howard F. Bonestell, died in 1905 at Troy, N. Y.

Dr. Charles E. Greenman, died April 25, 1905, at Troy, N. Y.

Dr. James E Smith, died August 15, 1906, at Albany, N. Y.

Dr. James B. Kennah, died July 11, 1907, at Saratoga, N. Y.

Dr. Robert Furman, Jr., last known address, Chicago, Ill.

I sent letters to all the surviving members of the class to their last known addresses. The following were returned as unclaimed or unknown:

Dr. Elmer E. Johnston, Oneonta, N. Y.

Dr. Charles W. Nichols, Amsterdam, N. Y.

Dr. A. D. Rose, Charlestown, R. I.

Dr. Charles W. Snyder, Great Barrington, Mass.

The letters not answered nor returned were as follows, all having been sent to the last known address:

Dr. Charles E. Briggs, Schenectady, N. Y.

Dr. Henry W. Brown, Silver City, New Mexico.

Dr. Charles S. Bumstead, 206 Alexander avenue, New York City.

Dr. Charles H. Callendar, New Boston, Mass.

Dr. Fred L. Deyo, Hunter, N. Y.

Dr. Richard F. Duncan, 200 Olneyville square, Providence, R. I.

Dr. Fred C. Gorham, Sheffield, Mass.

Dr. Wilbur F. Lamont, Catskill, N. Y.

Dr. George E. Lochner, 196 State street, Albany, N. Y.

Dr. A. G. Losee, 746 Broadway, Albany, N. Y.

Dr. M. R. Smith, McGrawville, N. Y.

Dr. L. J. Somers, 23 South street, Rochester, N. Y.

Dr. T. C. Washburn, Spencer, N. Y.

Dr. B. S. Booth, Troy, N. Y., started practice in his present location, is very successful, doing both private and hospital work, confining himself to eye, ear, nose, throat and lungs. Expects to be present Alumni Day.

Dr. A. M. Burt, Charlton, N. Y., after graduation located at Nelliston,

N. Y., remaining there one year; he removed to Fort Plain, N. Y., where he remained four years; he went from there to Glen, N. Y., where he remained until December, 1906, and removed to his present location, back to the county of his birth which he thinks is the best county on the earth. He has a fine country practice and has enjoyed good health. In April, 1890, he married Miss Fannie A. Rugg of Bacon Hill, N. Y. Got the automobile bug. Expects to be present at this reunion.

Dr. William M. Campbell, 176 Remsen street, Cohoes, N. Y., has practiced at his present location since graduation, has four well-equipped offices and owns the buildings in which they are located, has a good, paying practice, and is at peace with the world. For the last few months he has been obliged to abandon his active practice, having been appointed administrator of an estate. If it is possible he will meet us at this reunion.

Dr. Samuel Cheseborough, Atalissa, Iowa, expects to be with us to-day. He states he has been back home four times in the past twenty years but not to commencement. Married, 1890. Three children—two boys and girl—16, 14, 8. Registered pharmacist in Iowa; postmaster for eight years; pulls teeth for a diversion.

Dr. C. A. Dorval, Whitehall, N. Y., present location has always been the place where he has practiced medicine. "I can truthfully say that I have worked hard and have met with success. I have devoted my time especially to midwifery." He is employed by several large insurance companies as examiner. He regrets that his work will not allow him to be present this twentieth anniversary. He states, "I would certainly love to meet the members of the Class of 1889 and our historian, for whom I have always entertained a warm feeling."

Coeymans, N. Y., *May* 17, 1909.

A. H. Bayard, M. D., *Cornwall, N. Y.:*

Dear Doctor.—I have practiced with the varied experiences of the country doctor in the town of Coeymans twenty years.

I have a girl ten and a boy six years old. I attended every session of Clinical Days at the City Hospital which was an excellent course, and put in six weeks in New York at the Post Graduate in 1904. I have always esteemed it an honor to have graduated in the Class of '89.

Yours truly,
A. T. Powell.

Dr. C. C. McCullough, 315 Hudson avenue, Albany, N. Y., states, "Am not engaged in active practice just at present." He expects to be present to-day.

Dr. J. M. Mosher, 170 Washington avenue, Albany, N. Y., says, "The past ten years have been practicing in Albany." A great deal of his work has been with nervous and mental disorders and he is a recognized authority in this branch of medicine, being connected with the college and hospital in this department. "My family," he states, "has been increased in that time by the addition of a daughter." He will be present to-day.

Dr. Emmett Niver, Hillsdale, N. Y., writes, "At the end of another ten-year period I am still enjoying good health, doing business along the same

line, and to about the same extent. Have one child, a daughter." In 1899 Dr. Niver stated in his letter to the historian that he married January 1, 1895, "but to present date have not been blessed with children, but—wait." He hopes to be present at the reunion.

Dr. W. R. Seeber, Milford, N. Y., says, "I am still in Milford at the same old stand. Business keeps increasing with years. Am health officer for two towns," and he hopes to be present to-day.

Dr. F. S. Snow, Palatine Bridge, N. Y., will surely try and be with us to-day. "Have been able to keep even so far with the world. One cannot tell what the future has in store."

Dr. J. R. Strang, Vischer's Ferry, N. Y., located at his present place shortly after graduation, is enjoying good health and a reasonable amount of success. He writes, "Am married, have one son sixteen, and one daughter nine years of age, have dabbled somewhat in politics, been coroner, health officer, and am at present supervisor of my town. The only thing I regret is that I am ten years older than I was at our last reunion."

Dr. William Van Doran, 122 North Second avenue, Mechanicville, N. Y., says, "Nothing special has happened in the past ten years." He hopes to be present to-day.

Dr. M. J. Zeh, Watervliet, N. Y., states "My practice as well as my health, has been good during the past ten years. I have no complaints to mention, except that my home was darkened about five years ago by the hand of death. My wife, who was my companion for over fifteen years, was taken away." He expects to be present to-day.

Dr. A. H. Bayard, Cornwall-on-Hudson, N. Y., "I am still located at the same stand as at last report ten years ago with the same result, success. I have for the past three years given a great deal of my time to medical legal expert work, always on the poor man's side, however, and have met with great success.

My family has not increased nor decreased, both wife and son, now in his eighteenth year, enjoying the best of health. Am here to-day."

The historian would greatly appreciate it if any of the members of this association would give him the correct address of any of the surviving members of this, our class, who have not responded to his letters.

Respectfully submitted,

A. H. Bayard,

*Historian of the Class of* 1889.

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## REPORT OF THE CLASS OF 1899.

John M. Adey. Since graduation has been located in Cohoes, N. Y. Is a member of the County and State Medical Societies and Assistant physician to the Cohoes Hospital.

Clifford H. Allen. Is in New York City. Did not reply to inquiries.

George E. Beilby. Served as interne in Albany Hospital, 1899-1900 From 1900-1904 was resident surgeon at the State Industrial School at Rochester, 1904-1905 was spent in post-graduate work at Johns Hopkins

School, since 1905 he has been in practice in Albany, limiting his work to surgery. He is a member of the County and State Societies, the A. M. A., the Bender Laboratory Club. He is Lecturer in Histology and Instructor in Surgical Pathology at Albany Medical College. Attending Surgeon Albany Free Dispensary, Assistant Attending Surgeon Albany Hospital. In 1900 was married to Miss Mary Gertrude Snyder; has one child.

Austin W. Bender. Since graduation has been in general practice in Utica, N. Y. Is a member of the County and State Societies and B. P. O. E. He married Mary C. Smith; has no children.

Lester Betts. After a term as interne in Ellis Hospital, Schenectady, he located in Schenectady, doing a general practice. Is a member of the County and State Societies. Married Margarette Frank. Has no children.

Frederick D. Branch. Was interne at St. Peter's Hospital from May, 1899 to March, 1900. Appointed Acting Assistant Surgeon U. S. Army, March, 1900, went immediately to Philippine Islands. Spent one year in field service against insurgents, then promoted to rank of Captain and Assistant Surgeon, U. S. Volunteers, remaining in Philippines until July, 1902. From that time until March, 1907, was stationed in San Francisco, Cal., Columbia Arsenal, Tenn., Fort Ethan Allen, Vt., and New York City, resigned from the Army March, 1907, and three months after entered private practice in Binghamton, specializing in eye, ear, throat and nose diseases. During 1905 and 1906 took special courses at New York Post-graduate Medical School and New York Eye and Ear Infirmary, being assistant in eye and throat department, Post-graduate School, 1905 and 1906. Member National, State and County Societies, Association of Military Surgeons, Binghamton Club. Is oculist and otologist Binghamton State Hospital. In 1904 married May E. Van Cleft; has two children, a boy and a girl.

William J. Cavanaugh. After a short time in St. Peter's Hospital, Albany, began practice in Cobleskill. In 1901 entered State service, serving as interne, junior pathologist, and is now assistant physician at the Poughkeepsie State Hospital. Took a course in psychiatry and pathology at the Pathological Institute, New York City. Is a member of National, State and County Societies, Dutchess Medical Club. In 1908 married Miss Anna L. Smith.

Charles R. Conklin. After studying at the New York Homeopathic College, began practice in New York in 1900. Has devoted a great deal of time to work with various philanthropic organizations. Has taken part in investigations on the subject of pulmonary tuberculosis in the tenements and other subjects. At present is Medical Counsel for the New York Children's Aid Society, Superintendent of the Health Home, Coney Island, Superintendent of the Sick Children's Mission, New York City, Attending Physician at the Laura Franklin Hospital for Children and the Metropolitan Hospital, Blackwells Island, and various other organizations of a minor character. Spent some time in study at the New York Post-graduate School, and is now attending to children's diseases especially. "As ever, a bachelor."

Augustus E. Cordes. Since graduation has been located in Brooklyn, doing a successful general practice. Is as ever "all hell on fits." Is unmarried.

G. Worden Crissey. For a time was located in Troy, later removed to Mechanicville, where he is at present. Took a special course in physiological chemistry with Dr. Holmes C. Jackson at the Albany Medical College. In 1904 married Miss Sarah C. Bacon; he has no children.

Fred A. Deal. Entered College of Physicians and Surgeons, New York, graduating in 1903. For a year was interne at the Mothers and Babies Hospital. Also served as interne in Post Graduate Hospital and later at St. Francis Hospital. Is attending physician to St. Joseph's Hospital, New York. Is a Mason, Knight of Malta and Forester. Married Harriet A. Lang, in June, 1908.

Nicholas J. Delehanty. Is located in Rutland, Vt. No reply to inquiries.

Joseph O. DeSobe. After graduation settled in Belvidere, Ill., and had an excellent general and surgical practice, being a member of Boone County Society. For a number of years was president of Board of Health of Belvidere. Last year on account of failing health was obliged to go to Colorado and located in Denver where he now is practicing. In 1889 he married Miss H. W. Martern. None of their children are living.

James E. Doig. Is at Endicott, N. Y. No reply to inquiries.

Warren H. Everett. Was interne at Marshall Sanitarium, Troy, N. Y., then located at Peru, N. Y., where he has been health officer since 1905. Member of Clinton County Society. "I am just a common country doctor, and I like it and have done very well and am doing better all the time." Is unmarried.

Adolph R. V. Fenwick. Is at Central Falls, R. I. No reply to inquiries.

George H. Fish. Is at Saratoga, N. Y. Has had post graduate work in New York, Boston, and Rochester, Minn. Member of National, State and County Societies, Saratoga Springs Medical Society. Coroner of Saratoga County 1905-1908. Visiting Physician Saratoga Hospital, Visiting Surgeon, St. Christina's Home. House Physician Grand Union Hotel. Married Leah Hutchinson Rowley. Has no children.

James H. Flynn. After completing one year of service in Saratoga Hospital and taking a course at the Post-graduate College in New York, began and continued to practice in North Troy, doing a general practice. Is physician to Leonard Hospital. Member of County and State Societies. October, 1902 married Miss Margaret M. Hogan. Has no children.

E. Paul Foley. Is in Schenectady, N. Y. No reply to inquiries.

Rupert W. Ford. Located in Otego, N. Y. "Happily married, comfortably located in a beautiful valley of the Susquehanna and doing a fine cash business." Member National, State and County Societies, was president of County Society. Member Pension Bureau and Health Officer. Married Helen Louise Fleming. Has no children.

Albert E. Garland. Is located in Boston, Mass. He has taken post-graduate courses at Harvard Medical School, and is now devoting his attention to orthopedics. He married Miss Simmons of Grand Rapids, Mich., and they have two children.

Christian G. Hacker. Served as interne in the Albany Hospital during 1899-1900, and as surgeon to the Albany Fire Department from 1899 to 1901. He then for a time located in Gloversville, but soon returned to Albany, where he has built up a very large practice. He was Instructor in Materia Medica and Therapeutics in the College for several terms, but the demands of practice compelled him to resign. He was Lecturer on Accidents and Emergencies at the Eastern New York School for Domestic Nurses and is now Lecturer in Surgical Nursing. He also spent some time in post graduate work at Harvard College and the Boston City Hospital. Is a member of National, State and County Societies.

"Regarding practice, have always had enough to do and am glad to say that it is largely now a surgical practice." Married Ethel H. Penny, and has two children.

Julius E. Haight. Entered the State service at the Utica Hospital, and after passing through the various grades is now assistant physician. Is a member of the County Medical Society. Married Miss Mabel Rothery, and they have two children.

Henry P. Hammond. Spent two years in New York in post-graduate work, then located in Franklin, Pa., where he is still practicing, giving special attention to surgery. Is surgeon to Franklin City Hospital and surgeon to two large manufacturing plants. Vice-president Venango County Medical Society. Member A. M. A., and Cosmos. Married Miss Florence L. Spring, and has no children.

Edward L. Hanes. Has been in the State service at Craig Colony, Hudson River and Rochester Hospitals, and later was physician in charge of Dr. Comb's Sanitarium at Corona, L. I. Has made post-graduate studies at the Pathological Institute, New York City, and at Johns Hopkins School. Is now in private practice in Rochester, specializing in neurology. He is neurologist to St. Mary's Hospital, consulting neurologist to the State Hospital and assistant neurologist to the Rochester City Hospital. Is a member of the Monroe County Society, Rochester Academy of Medicine, American Medico-Psychological, National Association for the Study of Epilepsy and the Rochester Masonic Club. Unmarried.

Dean S. Harrison. After two years at Frankfort, N. Y., settled at New York Mills, N. Y. He is a member of the Oneida Medical Society and the Utica Medical Library Association. In 1900 married Jean M. Ostrander, and has had three children, one of whom has died.

William G. Healey. Located first in Troy, N. Y., then for several years was in Western States. Returning resumed practice in Kingston and later in Albany, N. Y.

Eugene E. Hinman. Was resident physician for a year in the Albany County Hospital, then located permanently in Albany. After post-graduate study in New York in diseases of the ear, nose and throat he has limited his practice entirely to that department. He is attendant laryngologist and rhinologist to St. Peter's Hospital Dispensary and the Federation of Labor Tuberculosis Pavilion. Is a member of the National, State and County Societies, the University and Clinical Clubs. Assistant Surgeon, First Lieutenant, N. G. N. Y., Lieutenant Surgeon, U. S. V. Life Saving

Corps, Historian A. M. C. Alumni Association 1902-1909. A member of all York Rite Masonic Bodies and Shrine, and at present Grand Lecturer of Grand Council R. & A. M. of New York State. Married Miss N. Edna Tallmadge, and has a girl three years old.

William T. Hudson. Ran a private sanitarium for two years but tired of it and went into general practice in Auburn, N. Y. During the past four years he has specialized in gynecology doing mostly office work. Member of National, State and County Societies, and Auburn Medical. Married Miss Rosa A. Stone, and has a boy ten years old.

Walter L. Huggins. After a term as interne in Ellis Hospital, located in Schenectady, and except for time spent at Post-graduate and Polyclinic in New York remained at Schenectady until 1908, when he went to Los Angeles, where he is now in practice. Member of National, State and County Societies, American Academy of Medicine, Surgeons' Club, Rochester, Minn. Married Miss Edith M. Hazard, and has one child.

Harry F. Hull. Is located at the Naval Training Station, Newport, R. I. No reply to inquiries.

Howard F. King. Spent several months in Hartford Hospital, then located in Windsor, Conn., where he has been doing general practice. Member of National, State, County and Hartford Medical Societies. In 1901 married Susan Loomis, has one child.

Robert E. Kinloch. Located in Brooklyn, where he is doing a very large general and surgical practice. Member of Kings County and Graduates Club. Married Bessie F. Robinson and has one child.

William Kirk, Jr. Was in Troy Hospital as interne for a year, then began practice in Troy, N. Y. For a time did post-graduate work in Bender Laboratory, Albany. Member of State and County Societies and Medical Society of Troy and Vicinity, and is secretary of the last-named. Is neurologist to the Troy Hospital, O. P. D., and Instructor in Anatomy of Nervous System in Albany Medical College, and Pension Examiner. Married Grace Ingalls Countryman and has one child.

William T. Knowlton. After a term as interne in Springfield City Hospital, settled in Hubbardston, Mass., where he is still practicing. He is a member of the Massachusetts Medical Society, Physician to the Wachusett Sanitarium and Chairman of the Board of Health. Is unmarried.

Thomas J. Lally. Is at Waterbury, Conn. No reply to inquiries.

Joseph A. Lanahan. Is at Albany in general practice, with special attention to dermatology and genito urinary work. Was interne at St. Peter's and for a short time at Dannemora State Hospital. Is a member of the National, State and County Societies (and is now Secretary of the County Society), American Academy of Medicine, American Association for Promotion of Science, the University and Clinical Clubs, and others too numerous to mention. Is Instructor in Dermatology at Albany Medical College, Dermatologist to the Albany Free Dispensary, St. Peter's and Albany Hospitals, O. P. D., Physician to St. Vincent's Asylum, St. Francis' Home and the House of Good Shepherd. Is still unmarried.

Walter A. Leonard. The first eight years after graduation I spent in

general practice at Shushan, N. Y. In January, 1908, I located at Cambridge, N. Y., my present address, where I am enjoying a very profitable practice in a good country. Have no specialty. Take anything that comes. Member of F. & A. M. and M. W. A. Health Officer of Shushan 1904-1908, and at Cambridge since 1908. Married Miss Evelyn Conklin and has two girls.

Whittlesey D. B. Lester. After graduation I went to Grafton where I remained till 1901, when I came to Indian Fields, where I am doing a very satisfactory general practice. I belong to the County and State Societies. Have been Health Officer of the towns of Grafton and Westerlo. Am married and have one child.

Bernard Livingston. Since graduation has been located in New York City. Is member of Harlem Medical and German Medical Societies. Chief of Children's Division of Lebanon Hospital, O. P. D. Is unmarried.

Daniel A. McCarthy. "Located in Troy, N. Y. Assistant to health officer for six years, district physician for two years, rest of the time did a reputable practice. Member of National, State, County and Troy Medical Societies. Unmarried and have no children."

James E. McDonald. Is located in Cohoes since graduation. No reply to card of inquiry.

Berthier W. Mather. In 1899-1900 was interne in St. Mark's Hospital, Salt Lake City. In 1900 located at Mountain Home, Idaho, where he is still practicing. Is a member of Idaho State Society and local surgeon for O. S. L. R. R. In 1906 married Mabel R. Kelly; they have two children.

Harris Moak. Located in Albany for four years during the greater part of which time he did special work in Bender Laboratory; for past six years has lived in Brooklyn, and has also made special studies in New York. Is member of National, State and County Societies, and American Association of Pathologists and Bacteriologists. Is Professor of Bacteriology in Long Island College Hospital, and Bacteriologist to Milk Commission of Medical Society of Kings. In 1900 married Mary Louise Smedley; they have three children.

Ransom S. Moscrip. Is at Grand George, N. Y. No reply to inquireis.

Leon Gray Ogden. Since graduation has been located at Barre Centre and Albion, N. Y. Is member of State and County Societies. Is physician to Orleans County Hospital. Married Miss Kathryn Culver; they have one son.

Karl A. Parshall. For a short time was at St. Peter's Hospital, then for four years was in New York City. Then married and went to Frisco for a pleasure trip. Returned and lived in Newark for two years and now am finally settled in Brooklyn near Gus Cordes. Am doing a general practice and doing quite well. Have been a rolling stone but gathered a little moss. Member Second Ward Queens County Medical Society. Married Blanche C. Rifenburg. Have no children.

George S. Post. Located first at Fair Haven, N. Y., and later at Holley, N. Y., where he is now in general practice. Is a member of the State and County Societies, and is Vice-president of the County Society. Has been coroner of Orleans County. Married Elsie M. Gibbons, and has one son.

William H. Rankin. Is in Brooklyn, N. Y. No reply to inquiries.

George W. Ross. Since graduation has been in practice at Port Ewen, N. Y., doing general practice. Is a member of the State and County Societies, is a Mason, Knight Templar, Shriner and Knight of Pythias. Is married to Dulcia Holt, has no child.

Thomas W. Salmon, writes: "I commenced practice at Brewster, N. Y., soon after graduation but was obliged to give it up in 1901 on account of a prolonged illness. . After recovering my health in the Adirondacks later in the year, I was appointed by the State Commission in Lunacy to investigate an epidemic of diphtheria at the Willard State Hospital. I remained at that institution until 1903, when I was commissioned Assistant Surgeon in the U. S. Marine Hospital Service. I have been stationed at Philadelphia, Pa., at the Marine Hospital at Stapleton, N. Y., and, for two years and a half, at Ellis Island for the examination of immigrants with especial reference to their mental condition. Since May, 1909, I have been stationed at the Marine Hospital, Boston. I was promoted to the grade of Passed Assistant Surgeon in July, 1908.

"I have written some articles on diphtheria, mental diseases and the medical phases of immigration for State and Government reports and for the medical journals.

"I was married in 1889 to Miss Helen P. Ashley of Lansingburgh, N. Y., and we have four boys."

Walter H. Sanford. After graduation was on the resident staff of the General Memorial Hospital, New York City, for sixteen months. Later, was appointed as interne at Matteawan State Hospital, remaining there for seven months, came to Kings Park State Hospital as Junior Assistant Physician, later was appointed as Assistant Physician and still hold the same position. Member of the State and County Societies. Is a Mason, and is unmarried.

Isaac B. Schauber. Died in Troy, N. Y., in 1899, shortly after graduation.

Clayton E. Shaw. Located at Hoosick Falls, N. Y., immediately after graduation, where he is still in practice. Member of State and County Societies. Married Lucy M. Cottrell, and has a son.

Fred. A. Smart. Died at his home in Cobleskill, N. Y., April 14, 1906, aged twenty-nine. He first located at Carlisle, N. Y., then at Nassau, N. Y., going to Cobleskill in 1903. In June 1902 he married Miss Lois Wilcox, they had one child.

Edward S. Smith. Located at Westfield, Mass., where he is still in practice. Member Massachusetts Medical Society, A. M. A., Massachusetts Medico-Legal Society. Is Attending Surgeon at Noble Hospital, Associate Medical Examiner of Hampden County, Inspector of Schools, and from 1900 to 1905 was city physician. He married Clarissa B. Gibbs, and they have one girl.

Lee Somerville. Located at North Creek, N. Y. Is a member of Warren County Medical Society, was Health Officer of the towns of Minerva and Johnsonburg for four years, and for the last four years Health Officer of Johnsonburg. Has owned and run the private sani-

tarium, "The Gables," for four years. Married Ona Scanlon; they have one daughter, Leona.

Edgar R. Stillman. Began practice in Troy, N. Y., and has been successful. Has practiced in Troy since graduation except during the time spent in post-graduate study in Europe (1901), at Baltimore (1903), and in New York City (1905). Member of National, State and County Societies. Attending Physician to Samaritan Hospital, Troy. Married Miss Frances Chapman, and has two boys.

Byron L. Sweet. "I was appointed house physician to St. Peter's Hospital, Albany. After serving my term, I came to Berlin, Rensselaer County, N. Y., where I have practiced since. My practice is a country practice of which I have had plenty, and I am enjoying good health."

G. Scott Towne. Spent two and a half years as interne in Hartford Hospital, then returned to Saratoga. Has made post-graduate study at Johns Hopkins School, Edinboro University and London Hospital. Is limiting his practice to gynecological surgery. Member of National, State, County and Saratoga Medical Societies, and is secretary of Saratoga Society. Is Health Officer, and is unmarried.

Merrill E. Van Aernam. After graduation the first year was spent as interne in hospital and taking a post-graduate course at the New York Post Graduate School. After this "settled down in Saratoga Springs and entered general practice where I have been satisfied with life. Am on the obstetrical and dispensary staffs of Saratoga Hospital. Member of Saratoga Springs Medical Society and State and County Societies, and President of the Saratoga Springs Society. Have been village physician, and am unmarried."

Francis E. Vander Veer. Is in Baltimore, Md. No reply to inquiries.

Michael F. Wansbury. Began practice immediately in Troy, N. Y., and has been successful. Spent 1904 in special post-graduate work in gynecology, and since then has given special attention to that branch. Is a member of National, State, County and Troy Medical Societies. Was health physician for some time. Married Jane Petley; has no children.

William A. Wardner. Located at St. Regis Falls, N. Y. Spent some time at the Johns Hopkins School in post-graduate work. Member State and County Societies, formerly president of county society, and is health officer of towns of Waverly and Santa Clara. Married Lena E. Palmer; they have no child.

Harry J. White. Spent one year as interne in Albany Hospital and one in Samaritan Hospital, Troy. From 1901 to 1904 was city physician. Is Assistant Surgeon at Samaritan Hospital. Member of State, County and Troy Medical Societies. October 16, 1904, was married to Fannie E. Randall; they have one son.

Howard L. Wood. Died at his home in Groton, Conn. (where he had practiced since February, 1901), May 14, 1908. He leaves wife, but no children.

William H. Young. Was in the State service and later located at Starkville, N. Y. No reply to inquiries.

Respectfully submitted, Joseph A. Lanahan,
*Historian of Class of* 1899.

On motion of Dr. MacFarlane, the thanks of the Association were tendered the Historian, Dr. Bedell, and the Class Historians, Drs. Murray, Voorhees, Bayard and Lanahan.

The Nominating Committee, by its Secretary, Dr. Wilson, submitted the following report by its chairman:

REPORT OF THE NOMINATING COMMITTEE.

*For President,*
SHELDON VOORHEES ('79), Auburn, N. Y.

*For Vice-Presidents.*
ZOPHER F. DUNNING ('88), Philmont, N. Y.
JOHN J. D. MCALLISTER ('79), New York City.
CHARLES BERNSTEIN ('94), Rome, N. Y.
MARSHALL LATCHER ('97), Oneonta, N. Y.
CHRISTIAN G. HACKER ('99), Albany, N. Y.

*For Recording Secretary,*
J. MONTGOMERY MOSHER ('89), Albany, N. Y.

*For Corresponding Secretary,*
ANDREW MACFARLANE ('87), Albany, N. Y.

*For Treasurer,*
ROBERT BABCOCK ('84), Albany, N. Y.

*For Historian,*
ARTHUR J. BEDELL ('01), Albany, N. Y.

*For Members of the Executive Committee (term three years),*
JOHN H. GUTMANN ('02), Albany, N. Y.
TERENCE L. CARROLL ('85), Albany, N. Y.
LEO F. ADT ('92), Albany, N. Y.
E. GERALD GRIFFIN ('01), Albany, N. Y.

On motion of Dr. Tucker, the Secretary was directed to cast one ballot for the names contained in the report. The Secretary then read these names and President Brewer declared the members named in the report the duly elected officers of the Association for their respective terms.

Impromptu remarks were made by Dr. Sheldon Voorhees, President-elect, and by the oldest graduates present, Drs. S. H. French and William E. Johnson, of the Class of 1859.

Announcements of the program of the day, the commencement exercises and alumni dinner, having been made and no further business appearing, the Association adjourned.

## Commencement Exercises.

The seventy-eighth commencement exercises of the Albany Medical College were held at Odd Fellows' Hall, on Tuesday afternoon, May 18, 1909, at three o'clock, in the presence of a large audience. Samuel B. Ward, M. D., Dean of the College, presided, and upon the stage were seated the members of the Faculty, officers of the Alumni Association and prominent citizens.

The following was the

### ORDER OF EXERCISES.

Dean Samuel B. Ward, M. D., Presiding.

*March*—Selection, "Marcella" ..... *Luders*

*Prayer* ..... Rev. Charles G. Sewall

*Music*—Intermezzo, "The Glow Worm" ..... *Lincke*

*Essay* ..... William Henderson Davidson

*Music*—"Happy Days" ..... *Levi*

Presentation of Candidates for Degrees by Dean Ward

### CONFERRING DEGREES

By Charles Alexander Richmond, D. D.
Chancellor of the University

*Music*—Tone Poem, "Lilacs" ..... *Roberts*

### ADDRESS TO THE GRADUATING CLASS

Prof. Abraham Jacobi, M. D., LL.D.

*Music*—Serenade, "Amina" ..... *Lincke*

*Valedictory*—Charles James Kelley

### REPORT ON PRIZES AND APPOINTMENTS

Joseph D. Craig, M. D.

*Music*—Finale, "Fairest of the Fair" ..... *Sousa*

The Graduating Class was as follows:

Edward Johnson Abbott, A. B. ..... Albany, N. Y.
Morris Bellin ..... Albany, N. Y.
William Arthur Bing ..... Castleton, N. Y.
Lewis Webster Burdick, B. S. ..... Maryland, N. Y.
Craig Thomas Burns ..... Geneseo, N. Y.
William Francis Conway ..... Albany, N. Y.
William Henderson Davidson, A. B., Pd.B. ..... Cohoes, N. Y.
Edward Daniel Donohue ..... Glens Falls, N. Y.
Harry Houghton Drake ..... Albany, N. Y.
Orla Andrew Druce ..... Fulton, N. Y.
Wakeman Clark Egerton, A. B. ..... Albany, N. Y.
Gilbert Charles Fisk ..... Albany, N. Y.
Henry Blacklidge Gillen ..... Cohoes, N. Y.
William Breese Gillespie ..... Saranac Lake, N. Y.
Eddy Stearns Haswell ..... Albany, N. Y.
Harley Heath ..... Warrensburgh, N. Y.
Thomas Milton Holmes, B. S. ..... Albany, N. Y.
James Richard Hunter, M. D. ..... Troy, N. Y.
Ellis Kellert ..... Albany, N. Y.
Charles James Kelley ..... Cortland, N. Y.
Robert Schofield Long ..... Frankford, Del.
Eugene Francis McGillian ..... Green Island, N. Y.
James Gibbons McGillicuddy ..... Glens Falls, N. Y.
Thomas Andrew McGrath ..... Hoosick Falls, N. Y.
Burlin George McKillip ..... Albany, N. Y.
Frederick William McSorley ..... Malone, N. Y.
Edward Raymond Messer ..... Pittsfield, Mass.
Alexander Francis Mosher ..... Glens Falls, N. Y.
Neil Bertram Palen ..... Albany, N. Y.
Arthur Emerson Pitts ..... Cohoes, N. Y.
William Rufus Rathbun ..... East Springfield, N. Y.
Clarence Leonard Russell ..... Deposit, N. Y.
Charles Emerson Slater ..... Cairo, N. Y.
Frederick Eugene Vaughan ..... Gloversville, N. Y.
Walter Harry Waterbury ..... East Nassau, N. Y.
Calvin Bassler Witter ..... Albany, N. Y.
James Joseph York ..... Watervliet, N. Y.

Dr. Craig presented the prizes. He read a report on the Vander Poel prize, endowed by Mrs. Gertrude W. Vander Poel, in memory of her husband, the late S. Oakley Vander Poel, for many years a professor in the college, stating that the prize, consisting of a clinical microscope and accessories, offered to the senior student passing the best bedside examination in general medicine, has been awarded to Dr. Ellis Kellert, with honorable

mention of Dr. Charles James Kelly, Dr. Harley Heath and Dr. Arthur Emerson Pitts.

The prize offered by Drs. Vander Veer and Macdonald for the best report of the surgical clinics was awarded to Dr. Burlin George McKillip. For the second best report of these clinics, the prize offered by Drs. Hailes and Morrow was awarded to Dr. Ellis Kellert.

The prize, consisting of an ophthalmoscope, offered by Dr. Merrill for the best final examination in ophthalmology, was awarded to Dr. Charles James Kelley.

The Townsend Physiological prize endowed by the late Professor Franklin Townsend, Jr., M. D., was awarded to Mr. John L. Both for passing the best examination in physiology at the end of the first year of study.

Dr. Boyd's prize to the student passing the best final examination in obstetrics was awarded to Dr. Burlin George McKillip.

The prize, consisting of a case of surgical instruments, offered to the senior student passing the best final examination, by Dr. W. J. Nellis ('79), in memory of his brother the late Dr. T. W. Nellis ('91), was awarded to Dr. Burlin George McKillip, with honorable mention of Dr. Wakeman Clark Egerton and Dr. Charles James Kelly.

A prize, consisting of Gross' complete pocket case of instruments, offered by A. B. Huested & Co., to the first-year student passing the best final examination, was awarded to Mr. Albert Lenz.

The Daggett prizes, consisting of sixty and thirty dollars, respectively, for the best "anatomical specimens," were both awarded to Dr. Morris Bellin.

The Dagget prize for the best "deportment irrespective of scholarship," consisting of sixty dollars, was awarded to Dr. Burlin George McKillip, and the second prize, consisting of thirty dollars, was awarded to Dr. Robert Schofield Long.

Appointed Essayist for 1910, William Dewey Allen; Alternate, George Bibby.

The following hospital and laboratory appointments were announced:

*Albany Hospital:* Drs. Charles James Kelley, Harry Houghton Drake, Harley Heath, Ellis Kellert, Edwin Daniel Donohue, Arthur Emerson Pitts, Edward Johnson Abbott, Frederick William McSorley.

*St. Peter's Hospital:* Drs. Burlin George McKillip, Edward Raymond Messer, Eddy Stearns Haswell.

*Resident Pathologist, Albany Hospital:* Dr. William Leslie Munson ('08).

*Assistant Bacteriologist, Bender Laboratory:* Dr. William Arthur Bing.

*Samaritan Hospital, Troy:* Drs. Charles Emerson Slater, William Henderson Davidson, Louis Webster Burdick.

*Troy Hospital:* Drs. James Gibbons McGillicuddy, Alexander Francis Mosher, Neil Bertram Palen, Eugene Francis McGillian.

*Ellis Hospital, Schenectady:* Drs. James Joseph York, Calvin Bassler Witter.

*Cohoes Hospital:* Dr. Henry Blacklidge Gillen.

*Homeopathic Hospital:* Drs. William Francis Conway, Wakeman Clark Edgerton, Edwin Wallace Hannock.

*Binghamton State Hospital:* Dr. Clarence Leonard Russell.

*Buffalo Emergency Hospital:* Dr. Craig Thomas Burns.

*Resident Physician and Surgeon, New York Water Commissioners:* Dr. Orla Andrew Druce.

*Hudson River State Hospital, Poughkeepsie:* Dr. Frederick Eugene Vaughan.

## The Alumni Dinner.

The thirty-sixth annual dinner of the Alumni Association was held at the "Ten Eyck," on Tuesday evening, May 18, 1909, at nine o'clock. About one hundred and sixty were present, including members of the Association, the guests, and members of the graduating class.

The evening was enlivened by a smoker and some character burlesques by vaudeville entertainers, and by a quartette. Souvenir steins were distributed and the exercises were invigorated by the songs and cries of the various classes. A feature of the evening was the reception by Dr. Merrill of the Class of 1884, as his guests in honor of the twenty-fifth anniversary of their graduation.

## Editorial

The dispute which ensued between the two physicians would, perhaps, be unintelligible to any but those of the faculty, and not very entertaining to them. The character which the officer and Mrs. Ellison had given of the second doctor had greatly prepossessed Booth in his favor, and indeed his reasoning seemed to be the juster. Booth therefore declared that he would abide by his advice, upon which the former operator, with his zany, the apothecary, quitted the field, and left the other in full possession of the sick.

The first thing the new doctor did was (to use his own phrase) to blow up the physical magazine. All the powders and potions instantly disappeared at his command; for he said there was a much readier and nearer way to convey such stuff to the vault, than by first sending it through the human body. He then ordered the child to be blooded, gave it a clyster and some cooling physic, and, in short (that I may not dwell too long on so unpleasing a part of history), within three days cured the little patient of her distemper.

*Amelia.* HENRY FIELDING.

✠ ✠ ✠

**The Albany Gild**

To the casual observer, who has given little thought to the origin and significance of the word, a "gild" may be regarded as an incidental association for the promotion of good fellowship, security or prosperity of its members. In this assumption he will be correct, but on deeper inquiry he would be surprised to learn that not only association of individuals for such purposes, but even the word itself is as old as civilization. He would find that trades societies existed in Greece and Rome, where, as later, in England, craftsman and merchants were organized for protection, and in the reign of King Numa were enumerated the eight gilds of flute-blowers, coppersmiths, fullers, potters, goldsmiths, carpenters, dyers and shoemakers.

The English gilds have a partially mythical origin in the reign of Athelstan, and in Anglo-Saxon the word was spelled *gyld, geld* or *gild,* and signified both a payment, or compensation, and a fraternity. That gilds have had so little attention must be regarded as a curious lapse of historians, for their charters and records reveal no less the customs of the common people than do the accounts of wars, legislation and diplomacy,

the triumphs and disasters of the ruling classes. Indeed the societies of artisans and merchants appear to have represented the claims of the commonalty as distinguished from feudal rights, and their early privileges were thereby interwoven with the government and administration of towns and communities. Religious duties were closely interwoven with the fabric of the gilds, prominent among which was the strict observance of the forms of sepulture. Under such conditions it was natural that the spirit of common helpfulness should develop, as shown by the admission of widows to carry on the business of the deceased husbands. At Exeter was a gild which required meetings thrice a year, to which each brother was to bring two sesters of malt, and each "cniht" one sester and a sceat of honey, and say masses for the living and the dead; "at the death of each brother each man six masses and each man five pence; at a house-burning each man one penny; if anyone misgreet another, thirty pence." Notable among these ancient societies is the "Gild of the Holy Trinity," which, after an existence of five hundred years at Hull is still active in good work. This gild is closely linked with the well-being of the maritime population, and at the present time, maintains a navigation school, a life-boat, sees to the lighting and buoying of the harbor and conducts a benevolent society for the relief of mariners in sickness and old age. And, as of more special interest to our profession may be mentioned the laudable efforts of the Gild of Barber-Chirurgeons and Perukemakers, to prevent quackery, and to stamp out a pharmacopeia whose prominent resources were toad's legs and cockroaches—with no more success, it may be said, than attends the struggles of the modern physician against the pathies, sciences and movements of the present day.

It is a matter for congratulation that Albany's greatest and most effective charity should have selected a corporate title based upon such honorable and ancient traditions. The difference betwen the mediaeval merchant or craft gild and the modern society lies in the purely eleemosynary character of the latter. Protection of private and public interests is sought in other institutions, and the gild is incorporated for charitable purposes only. None the less is the spirit as active as of yore. The Albany Gild is an association of women formed for the "care of the sick, including the employment of nurses, preparation of diet, instruction in home nursing, health, moral and wholesome

living, and the rendering of aid in cases of illness requiring charitable assistance." How well this mission is fulfilled is shown by the fact that in the twenty years since the installation of the first nurse, the enormous number of 152,833 visits to the homes of the sick or needy have been made by the hospital graduate nurses employed by the gild. The report for the year ending January 31, 1909, states that 18,990 visits have been made during that year or over fifty a day! The magnitude of their work is surpassing and the value of the unrecorded benefits beyond computation—in the words of the report "it would be impossible to compile any statement which would indicate the amount of comfort, of womanly sympathy, of true Christian helpfulness, of actual healing." The great undertaking represents the voluntary and disinterested work of Albany women. It knows no creed or race, and recognizes no purpose other than the Virgilian precept, that, "the noblest motive is the public good."

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## Public Health

Edited by Joseph D. Craig, M. D.

Department of Health—Albany, N. Y.

Abstract of Vital Statistics, May, 1909

*Deaths.*

| | 1905 | 1906 | 1907 | 1908 | 1909 |
|---|---|---|---|---|---|
| Consumption | 21 | 18 | 13 | 21 | 17 |
| Typhoid fever | 0 | 0 | 0 | 0 | 0 |
| Measles | 4 | 0 | 0 | 1 | 0 |
| Scarlet fever | 0 | 0 | 0 | 9 | 0 |
| Whooping cough | 0 | 0 | 0 | 0 | 0 |
| Diphtheria and croup | 3 | 0 | 1 | 1 | 2 |
| Grippe | 0 | 0 | 2 | 3 | 0 |
| Pneumonia | 10 | 8 | 9 | 8 | 6 |
| Broncho-pneumonia | 1 | 7 | 4 | 3 | 1 |
| Bright's disease | 5 | 19 | 13 | 16 | 19 |
| Apoplexy | 8 | 12 | 6 | 7 | 13 |
| Cancer | 6 | 14 | 5 | 14 | 14 |
| Accidents and violence | 11 | 3 | 10 | 10 | 5 |
| 70 years and over | 25 | 32 | 26 | 21 | 37 |
| 1 year and under | 8 | 12 | 9 | 10 | 15 |
| Total deaths | 146 | 159 | 131 | 145 | 161 |
| Death rate | 16.31 | 18.71 | 14.82 | 16.06 | 18.94 |
| Death rate less non-residents | 15.04 | 16.94 | 12.67 | 15.76 | 16.47 |

*Deaths in Institutions.*

| | 1905 | | 1906 | | 1907 | | 1908 | | 1909 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Resident | Non-resident | Resident | Non-resident | Resident | Non-resident | Resident | Non-resident | Resident | Non-resident |
| Albany Hospital | 11 | 5 | 11 | 9 | 15 | 7 | 6 | 3 | 2 | 7 |
| Albany Orphan Asylum | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Child's Hospital | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| County House | 4 | 0 | 5 | 2 | 2 | 0 | 3 | 1 | 2 | 4 |
| Home for Friendless | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Homeopathic Hospital | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 3 | 0 | 0 |
| Hospital for Incurables | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| Little Sisters of the Poor | 0 | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |
| Public places | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 4 | 1 |
| St. Margarets House | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| St. Peter's Hospital | 5 | 2 | 3 | 3 | 4 | 1 | 4 | 2 | 9 | 1 |
| St. Frances De Sayles Or. Asylum | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |

| | |
|---|---|
| Births at term | 105 |
| Still births | 6 |

## Bureau of Plumbing, Drainage and Ventilation

In the Bureau of Plumbing, Drainage and Ventilation, there were two hundred ninety-one inspections made of which one hundred forty-three were of old buildings and one hundred forty-eight of new buildings. There were eighty-five iron drains laid, thirty-seven connections to street sewers, thirty-seven tile drains, fifty-seven cesspools, eighty-eight wash basins, one hundred fourteen sinks, ninety bath tubs, seventy-five wash trays, one butler's sink, two trap hoppers, one hundred forty-six tank closets. There were one hundred eighty-nine permits issued, of which one hundred twenty-eight were for plumbing and sixty-one for building purposes. There were seventy-three plans submitted of which twenty-two were of old buildings and fifty-one of new buildings. There were thirty-nine houses tested, three with blue or red and there were thirty-six water tests. Sixteen houses were examined on complaint and thirty-eight were re-examined. Eleven complaints were found to be valid and five without cause.

## Bureau of Contagious Disease

*Cases Reported*

| | 1905 | 1906 | 1907 | 1908 | 1909 |
|---|---|---|---|---|---|
| Typhoid fever | 1 | 3 | 11 | 5 | 1 |
| Scarlet fever | 8 | 19 | 10 | 117 | 13 |
| Diphtheria and croup | 8 | 18 | 28 | 17 | 4 |
| Chickenpox | 2 | 0 | 7 | 8 | 8 |
| Measles | 129 | 3 | 11 | 71 | 23 |
| Whooping-cough | 0 | 3 | 0 | 0 | 0 |
| Consumption | 0 | 3 | 19 | 24 | 25 |
| Ophthalmia neonatorum | .... | .... | .... | .... | 1 |
| Totals | 148 | 49 | 86 | 242 | 75 |

*Contagious Disease in Relation to Public Schools*

| | *Reported* | | *Deaths* | |
|---|---|---|---|---|
| | D. | S. F. | D. | S. F. |
| Public School No. 4 | .... | 1 | .... | .... |
| Public School No. 8 | .... | 1 | .... | .... |
| Public School No. 11 | .... | 1 | .... | .... |
| Public School No. 13 | .... | 1 | .... | .... |
| Public School No. 15 | .... | 1 | .... | .... |
| Public School No. 16 | .... | 2 | .... | .... |
| Public School No. 17 | .... | 1 | .... | .... |
| Public School No. 20 | .... | 1 | .... | .... |
| Albany Business College | .... | 1 | .... | .... |

Number of days quarantine for diphtheria:
Longest..... 9 Shortest..... 9
Number of days quarantine for scarlet fever:
Longest..... 57 Shortest..... 12 Average..... 31 10-11
Fumigations: Houses..... 22 Rooms..... 99

| | |
|---|---|
| Cases of diphtheria reported | 4 |
| Cases of diphtheria in which antitoxin was used | 4 |
| Cases of diphtheria in which antitoxin was not used | 0 |
| Deaths after use of antitoxin | 2 |

## Bender Report on Tuberculosis.

| | |
|---|---|
| Positive | 17 |
| Negative | 17 |
| Failed | 1 |
| Total | 35 |

### Tuberculosis.

| | | |
|---|---|---|
| Living cases on record May 1, 1909 | | 349 |
| Reported during May, 1909: | | |
| By telephone | 0 | |
| By Bender | 15 | |
| By card | 1 | |
| | 16 | |
| Dead cases reported by certificate | 6 | |
| | | 22 |
| | | 371 |
| Dead cases previously reported | 10 | |
| Dead cases not previously reported | 6 | |
| | | 16 |
| Living cases on record June 1, 1909 | | 355 |
| Total tuberculosis death certificates filed May, 1909 | | 17 |

### Bureau of Pathology

*Bender Laboratory Report on Diphtheria*

| | 1905 | 1906 | 1907 | 1908 | 1909 |
|---|---|---|---|---|---|
| Initial positive | 9 | 10 | 27 | 18 | 3 |
| Initial negative | 15 | 18 | 45 | 86 | 16 |
| Release positive | 12 | 3 | 92 | 77 | 11 |
| Release negative | 4 | 16 | 175 | 78 | 7 |
| Failed | 0 | 0 | 24 | 2 | 7 |
| Totals | 40 | 47 | 363 | 261 | 44 |

Examination for tuberculosis:

| | | | |
|---|---|---|---|
| Initial positive | 8 | 6 | 13 |
| Initial negative | 10 | 10 | 9 |

### Bureau of Markets and Milk

| | |
|---|---|
| Market re-inspections | 118 |
| Public market inspections | 24 |
| Fish markets inspected | 16 |
| Fish peddlers inspected | 7 |
| Milk wagons in clean condition | 37 |
| Butter fats below 3 per cent | 2 |
| Butter fats from 3 to 3.5 per cent | 5 |
| Butter fats from 3.5 to 4 per cent | 25 |
| Butter fats over 4 per cent | 5 |
| Solids below 12 per cent | 5 |
| Solids from 12 to 12.5 per cent | 9 |
| Solids from 12.5 to 13 per cent | 11 |
| Solids over 13 per cent | 12 |

## Bureau of Milk.

| No. | Specific Gravity | Butter Fats | | | | Solids | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Under 3% | 3 to 3.5% | 3.5 to 4% | Over 4% | Under 12 % | 12 to 12.5% | 12.5 to 13% | Over 13% |
| 7..... | 31.6 | .. | .. | .. | I | .. | .. | .. | I |
| 31..... | 33.6 | .. | .. | I | .. | .. | .. | .. | I |
| 86..... | 31.6 | .. | .. | I | .. | .. | .. | I | .. |
| 41..... | 30.6 | .. | .. | .. | I | .. | .. | I | .. |
| 46..... | 32.6 | .. | .. | I | .. | .. | .. | I | .. |
| 47..... | 32.0 | .. | .. | I | .. | .. | I | .. | .. |
| 49..... | 33.6 | .. | .. | .. | I | .. | .. | .. | I |
| 51..... | 31.0 | .. | .. | I | .. | .. | I | .. | .. |
| 68..... | 32.6 | .. | .. | I | .. | .. | I | .. | .. |
| 74..... | 33.0 | .. | .. | I | .. | .. | .. | .. | I |
| 83..... | 32.6 | .. | .. | I | .. | .. | I | .. | .. |
| 94..... | 30.6 | .. | .. | .. | I | .. | .. | .. | I |
| 112..... | 33.0 | .. | .. | I | .. | .. | .. | I | .. |
| 116..... | 33.6 | I | .. | .. | .. | I | .. | .. | .. |
| 119..... | 34.0 | .. | .. | I | .. | .. | .. | .. | I |
| 120..... | 31.6 | .. | I | .. | .. | .. | I | .. | .. |
| 127..... | 34.7 | .. | .. | I | .. | .. | .. | .. | I |
| 144..... | 31.0 | .. | I | .. | .. | I | .. | .. | .. |
| 152..... | 32.6 | .. | .. | I | .. | .. | .. | I | .. |
| 153..... | 29.6 | .. | I | .. | .. | I | .. | .. | .. |
| 160..... | 31.6 | .. | .. | I | .. | .. | I | .. | .. |
| 161..... | 32.6 | .. | .. | I | .. | .. | .. | .. | I |
| 176..... | 31.6 | .. | .. | I | .. | .. | I | .. | .. |
| 180..... | 31.0 | I | .. | .. | .. | I | .. | .. | .. |
| 181..... | 31.6 | .. | .. | I | .. | .. | .. | I | .. |
| 182..... | 33.0 | .. | I | .. | .. | .. | I | .. | .. |
| 184..... | 32.6 | .. | .. | I | .. | .. | .. | I | .. |
| 184..... | 32.6 | .. | .. | I | .. | .. | .. | .. | I |
| 185..... | 33.2 | .. | .. | I | .. | .. | .. | I | .. |
| 187..... | 32.0 | .. | I | .. | .. | I | .. | .. | .. |
| 190..... | 34.0 | .. | .. | I | .. | .. | .. | .. | I |
| 191..... | 34.1 | .. | .. | I | .. | .. | .. | .. | I |
| 191..... | 34.0 | .. | .. | .. | I | .. | .. | .. | I |
| 193..... | 31.0 | .. | .. | I | .. | .. | I | .. | .. |
| 197..... | 32.6 | .. | .. | I | .. | .. | .. | I | .. |
| 199..... | 32.6 | .. | .. | I | .. | .. | .. | I | .. |
| 310..... | 32.0 | .. | .. | I | .. | .. | .. | I | .. |

MISCELLANEOUS

| | |
|---|---|
| Mercantile certificates issued to children | 40 |
| Factory certificates issued to children | 11 |
| Children's birth records on file | 51 |
| Number of written complaints of nuisances | 50 |
| Privy vaults | 3 |
| Plumbing | 10 |
| Other miscellaneous complaints | 35 |
| Total number of dead animals removed | 793 |
| Cases assigned to health physicians | 142 |
| Calls made | 193 |

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# Society Proceedings

## MEDICAL SOCIETY OF THE COUNTY OF ALBANY.

*Memorial Meeting—Charles E. Witbeck, M. D.*

A special meeting of the Medical Society of the County of Albany was held at the Albany Medical College Wednesday, May 19, 1909, to take action on the death of Dr. CHARLES E. WITBECK, or Cohoes.

Dr. ANDREW MACFARLANE presided. The following members were present: Drs. Archambault, J. L., Archambault, L., Archibold, Curtis, Daunais, Griffen, Holding, Tucker, Keough, Lanahan, MacFarlane, Mitchell, and Drs. Scott and Sobel, of Cohoes.

The President said, We are met to pay respect to one of the most honored of our members, and while we regret his loss, the one only satisfaction to those who knew him so well is that he worked to the end, and when he was stricken he showed the courage of a hero. I have anticipated the wishes of the society and appointed this committee to present resolutions of respect: Drs. Curtis, J. L. Archambault, Mitchell, Tucker, and Albert Vander Veer. Dr. CURTIS presented the following resolutions:

*Mr. President* and *Members of the Medical Society of the County of Albany:*

It is a sad duty which is levied upon your committee to give form and utterance to the sentiments of all of our members on the occasion of the death of one of our members. To us of the committee who were in some ways closer to Dr. WITBECK than others of you have been the consciousness of his departure from our companionship comes with a keener sense of loss and the obligation of expression at the same time falls upon us which we would not forego, as a committee and individually.

Dr. CHARLES E. WITBECK died on the morning of May 13th. He has been one of our oldest members, although when we think of his freshness

of work and his youthful, alert hold on vital things and the virility of his manner, in spite of a certain degree of invalidism which has given us concern for a number of years indeed, it is difficult to realize this. He became a member of this Society in 1868, and there are few left who antedate that period. He entered on his professional work quite early in life, having graduated from the Albany Medical College in 1866. His neighbor and friend, a fellow citizen of Cohoes, our much esteemed Dr. James D. Featherstonhaugh, became a member at near the same time and passed away four years ago.

Our Society is so predominantly one of the city of Albany that try as we may to keep it otherwise the good men outside of this city have not always had the share in its councils that would do so much to strengthen it, but those of our sister city of Cohoes have uniformly been its earnest supporters, which those of us in Albany have fully appreciated. Dr. Witbeck has been of this number, and he has assumed the burdens of office, having often held the important office of censor, and in 1874 was our vice-president. Remote as the meetings for the most part are he has, especially in past years been a frequent attendant upon them. He was a delegate to the State Medical Socety, an office which in its time meant much, from 1876 to 1880, and became a member of that important body in 1881 These elective positions illustrate the status he held in the medical bodies of which he was a part and to some degree his hold upon the profession and the estimate in which he has been held by his professional associates.

Dr. Witbeck has had a long and active practice in medicine. Faithful and devoted work in one field has filled up the life time of his efforts, without adventitious resorts to outside enterprises. It is instinctive for us to honor such service and every earnest life honorably spent in the ministry of humanity brings credit to our profession. It has brought him the rewards of good citizenship and the high regard of his associates.

Personally he was a most companionable man. Without ostentation, he was a genial, kindly and informing friend of all. To meet him on occasion or casually or in council was always a pleasure. His memory will always be pleasant.

We recommend that there be placed upon the minutes of the Society this record, that Dr. Witbeck was an honor to the medical profession, a worthy member of this Society, a man held by us all in high esteem, a friend whose memory we will preserve and cherish.

F. C. Curtis,
J. L. Archambault,
J. H. Mitchell,
W. G. Tucker,
A. Vander Veer,
*Committee.*

The following letter was received and read by the Secretary:

MAY 16, 1909.

Dr. JOSEPH A. LANAHAN, *Secretary, The Medical Society of the County of Albany, Albany, N. Y.:*

MY DEAR DOCTOR.—I am in receipt of your notice of the special meeting of the Albany County Medical Society on the afternoon of May 19th to take action on the death of Dr. Witbeck.

Dr. Witbeck was a man of fine attainments, of unimpeachable character and an ornament to our profession. His loss will be deeply felt by us all, and I sincerely regret that absence from the city on that day will prevent my attending the meeting.

Sincerely yours,

SAMUEL B. WARD.

Dr. J. L. ARCHAMBAULT:

In less than four years the medical profession of Cohoes has lost three of its members, all three most conspicuously before the eyes of the public and most deserving of the high standing they held.

After Featherstonhaugh and after Montmarquet, here to-day Witbeck is in turn taken away in full maturity and at the height of his professional efficiency.

Afflicted for so many years with an organic disease which never spares and which would have felled so many others, he has succumbed at the post of duty, having toiled to the last; just four days before, he had gone the round of his calls. We cannot see such a man depart from our ranks without regret and heart-breaking. By his unceasing labor, he has oftentimes commanded our admiration. To-day we owe a tribute to his memory; the tribute of an affection which he had easily conquered by his kindliness and good fellowship.

As we advance in life, not unlike soldiers on the battlefield, we see falling around us our companions in arms, and only too often those whom we hold most dear. When an aged man enters the valley of rest at the extreme limit of his days and his task fully completed, our grief submits to nature's inevitable law; but how can one's mind dispel the mingled feelings of moral revolt and deep sorrow when death strikes, as to-day, in the midst of his career, one of the ablest among us, one of those whose laborious maturity was constantly devoted to the service of suffering humanity and upon whose consummate experience we, his colleagues, relied so much for the work carried on together.

When speaking of work in common, I mean to refer especially to the work of the last twelve years. For us, professional men of Cohoes, the opening of our hospital shall always remain a telling event. From the moment our different services were organized he was appointed president of the Medical Staff; a position he held until his death. The same may be said of the Training School for Nurses; elected from the start chairman of the Lecturers, he showed himself one of the most interested in the work of the pupils. Intrusted with these responsibilities, he held them despite his frequent protest and his repeated desire to retire from office,

because he possessed the explicit faith and confidence of his colleagues who knew well and better than himself how splendidly gifted he was with those qualities of organization, leadership and kindly authority which command everybody's good will and insure success. Thus should we turn for a moment and survey the space covered, it clearly becomes our right and duty to inscribe to his credit a large part of the progress accomplished. This important part he would have been too modest and too disinterested to ever claim, but it is truly his, and it behooves us, guided by other motives than those which inspired him, to acknowledge and eulogize it at this very moment on the brim of the grave where now repose his remains hardly chilled yet by the solemn sleep of death.

Such he was in the discharge of his duties as president, such he maintained himself in his service as Attending Physician. He was noted for his punctual assiduity, thus setting himself example of a strict discipline in the fulfilment of obligations freely agreed upon. As a colleague he was of an intercourse so amiable! Whether every-day routine brought us together or whether we met in the assemblies in which were conducted the affairs of the Hospital, how pleasant it is to bear witness to his courteous manner of inviting a discussion and of presenting the arguments which in his mind should prevail! Had he to differ from you, his criticism would at once appear so devoid of personal motives, so entirely inspired by his love of truth and his zeal for the institution, that it was simply impossible for his remarks to create the least animosity in any honest mind.

This amenity in manners and this rectitude of character formed the basis for a professional probity as exalted as his moral conscience, and those rare qualities never once abandoned him. They made him a physician with few peers and contributed to assure him an exceptional influence over his clients. In fact, as a general practitioner, as a family physician, he shall remain a model most accomplished, one we can honor, we men in years, and one we can set as a worthy example to the younger generations.

Dr. Witbeck was a clinician of good school and of fine bearing, as he possessed that medical sense, almost intuitive, by which one sees right. Admitted to the profession at a time when medical science was about to be enriched by so many new modes of exploration, he was not indifferent to the importance assumed by the methods of investigation which physics and chemistry had in store, neither did he slight the fertile field later on opened before the more youthful with the advent of animal experimentation and laboratory research, but he always remained firmly convinced that, while it is proper to be initiated into these methods, and to never neglect the help which the laboratory may offer, these are but accessory means the value of which must always remain under the control of the physician's judgment and his keen study of his patient. In short, he has never ceased to uphold the very tenable position that the physician must be first and foremost a *clinician* and a *therapeutist*. For him the practice of medicine was essentially made of conscientious observation and of sagacious common sense. It was when confronted with a case that he felt at home and that he knew how to bring into play all the resources of his *materia medica*. With what minute care he would conduct the examination

of a patient, and by this care how promptly and deeply he would insinuate himself into his confidence! Many a time have I been told of his unbounded devotedness to his practice, and in turn of the unalterable attachment of his practice to him! Mutual and indefectible loyalty all the more commendable because so rarely attained. As he was in his private practice, we also find him in those years of his life which he devoted more particularly to the welfare of the city. Twice he occupied the office of Health Officer, and here I speak of a period of his life already remote. On both occasions, the organization of the Sanitary Department was far from being what it is to-day. I dare say that in those days everything was in the rudimentary stage. There it was his lot to have to cope with two of the severest epidemics of smallpox which have visited our city. The measure of executive ability which he displayed under these trying circumstances, was only equalled by his zeal and his admirable tact. He readily gathered about him the whole department, and his directions were willingly carried out because everybody felt that they were inspired by sound judgment and well informed talent. He also knew well how not to spare himself, which still remains the best and surest means of stimulating the good will and co-operation of subordinates. He insisted on the importance of revaccinations, enforced a rigid hospitalization, set a watchful eye on the in-and-out goings of the attendants, employees and purveyors, agents of contagion frequently as pernicious as the plague-stricken themselves; in short, by his sagacity, his prophylactic and hygienic measures, as well as by the art of his treatment, he had on both occasions the loathsome epidemic rapidly under control and in due time stamped out. We were much younger then, but I have vividly in mind the gratitude of the city and of the profession for his masterly stewardship.

If I were to appeal once more to my early recollections, I would find in some very deep recess of my memory an interesting page on the history of the year 1876, when there existed in Cohoes a local medical society established the year before, which was more shortlived than its founders, of whom I am now the sole survivor; I would find a date which appears to me eminently worthy of rejuvenescence. It is the date of a meeting at which our confrère read a remarkable essay on the "Nature, Composition and Formation of Renal Concretions." In that study of rental lithiasis, Dr. Witbeck drew out in a surprisingly precise manner the then little-known picture of uremia by calculous obstruction of the ureters. He also endeavored, by parallel and comparison, to differentiate the various modalities through which uremia is produced: beside the pure intoxication of ureteral occlusion, the toxi-infection of scarlatinous nephritis, the auto-toxemia of eclampsia, the slow cachexia of gouty origin and of arterio-sclerosis. How is it that the diseases of the renal apparatus had thus excited his interest? Did he have a vague presentiment of the atrocious attacks of nephritic colic which he suffered a few years after; first from the left kidney with the discharge of several concretions; later on from the right kidney with colics of the recurrent type, during which he sometimes had the chance to get rid of the *corpus delicti* and sometimes not; being thus led from renal colic to pyelo-nephritis, and then to sac-

culated kidney, unfortunate succession of lesions which were to have but one outcome, the final crisis of uremia by intoxication, so well described and, so to speak, foreseen in 1876, and left for us to so sadly verify to-day. It was during the attack of typhoid fever of which he suffered in the winter of 1899 that this condition of pyelo-nephritis was disclosed to his attending physicians. Many among the members of this society will undoubtedly recall the meeting held in Cohoes that winter—it was on the evening of January 25th—and how deeply felt was the absence of Dr. Witbeck from that meeting and how feelingly referred to by the president at the time! The doctor was indeed at death's door, and it was veritably a mystery that with such a complication, pus representing almost a quarter of the urine excreted, he should retain enough vitality to recover from so desperate a condition. Ten years have elapsed since, and it is another wonder that through all these years, with a lesion bound to become year after year more accentuated, the doctor could have remained so active and attend to his professional work up to the very last.

To speak of what his professional life has been as well as of the fulfilment of the various responsibilities intrusted to his charge, would be but a very inadequate tribute paid to his memory, lest were added thereto the far more valued assets represented by his personal qualities. If the physician was expert and learned, the man always proved himself to be of staunch mind, sound judgment and kindly heart. Simple, modest and kind he was in the highest sense of the word. His charming simplicity made you seek and prize his society. His modesty was but the adornment of his kindness. His good deeds were done without ostentation, in a way almost unknown to himself. Ready to welcome everybody, his gentleness would particularly greet the helpless and the sick. Yet this modesty and extreme kindliness did not exclude a remarkable fortitude. How strikingly this fortitude was displayed during his last years! Endowed with a wonderful will power, which never knew moral exhaustion, he never allowed himself, even through the renewed assaults of his incurable disease, to admit the progress of physical exhaustion.

He was a man of strong convictions, and at the hour he was stricken had he realized that it was death's signal, he would have accepted the call with serenity, his quietude of spirit remaining unmoved. A rather rare disposition in our days, he was not a lover of Negation. Doubt itself, oftentimes born of scientific investigations, offered no seduction to his mind. He was a firm believer in the life beyond. Conversationist amiable and unassuming, witty without acrimony, somewhat explosive when in humorous vein, very loyal but never over-confiding, above all a man of his home, he has taken with him the love and esteem of those who had the privilege of his intimacy.

As we loved and honored him, let us in this sad hour convey our sympathy to the son he has left to add luster to his honorable career and bow in silence before the devoted and desolate wife who during so many years shared his struggles against the inevitable with such heroic abnegation and almost superhuman courage; and to both let us say: His whole

life has been an example and his death is again a lesson; his friends shall not forget either.

After all, the most durable monument to one's life is the affectionate esteem and the unblemished remembrance one leaves behind.

Dr. Mitchell:

I, too, desire to pay tribute to the memory of Dr. Witbeck, and as emphasizing that principal characteristic which marked him—that characteristic referred to by Dr. Archambault—namely, "determination and will power;" simply wish to refer to his last few days. On May 6th, Friday evening, he went to the theatre (his wife and son had gone to Atlantic City). It was noticed by friends that he looked paler than usual. After a little he complained to a friend beside him that he had a severe pain in the head, and said he "must go out." He staggered when he arose from his seat as though he was dizzy. He walked out into the corridor of the theater and talked with a friend who advised him to go home, but after standing a few moments he went back to his seat, determined to stay. In a few moments he had to go home. The next morning he attended his patients as usual. Meeting some friends he did not know them and complained that his eyesight was failing. On May 8th he visited his patients in the morning returning to his office about 11.30 A. M. I saw him at 3.30 P. M. and found him in that peculiar dazed condition which precedes coma. He would not admit that he was sick nor would he take any medicine, saying he was all right. In the evening I found him in his office. He said he was all right, but we had a man stay with him during the night. In the morning the man reported that he had passed no urine, but the doctor still insisted that he was all right.

Dr. Archambault, Dr. Archibald, Dr. Elting and myself watched him constantly. His wife and son were sent for. He knew them. He fought to the last moment, and I never in my experience have seen so clear a demonstration of the power of the will over matter as I saw by that bedside. At one time I felt his pulse it was 160. He seemed to feel that he was passing down and out as with an effort of the will. He seemed to say no, I will not, and aroused himself. The pulse dropped to 96, full and regular. He made a splendid fight. Dr. Witbeck was a man of tireless activity and industry, and unsurpassed integrity in public, professional and private life.

During nearly a half of a century he did the work laid out for him to do, faithfully and well, unostentatiously, without blowing trumpet or sounding cymbal.

In all those years I do not believe he knowingly injured the feelings of a brother practitioner.

For nearly thirty years he suffered with that dread disease "chronic nephritis" patiently, always attending to his duties. Long suffering, he sounded the depths of medical and surgical science in search of health, in search of rest, but found it not. Week after week, month after month, year after year, his suffering continued. Then the time came when in humble submission to the divine decree, he took a loving leave of his faithful wife, devoted son, and admiring friends, bravely and fearlessly,

full of hope, sustained by faith he passed from this life to death and from death to the dawn of an eternal morning. Of him it may with truth be said:

Oh death, where is thy sting?
Oh grave, where is thy victory?

"From eternity's far shore thy spirit will return to join no more.
Rest, brother doctor, rest:
Thy troubled life is o'er."

Dr. Archibold said:

I am one of the younger men in the profession, yet it was my privilege to have known Dr. C. E. Witbeck, as boy and man, for over thirty years, twenty-one professionally; in all that time never a cloud came between us to mar in any way the mutual friendship and respect we had for each other; I wish to endorse all that has been said in eulogy of him, and to add that the city of Cohoes has lost one of its most valued citizens, one whose life and example were uplifting. Therefore, if it is in order, I would move that the report of the committee on resolutions be adopted, that they be spread on the minutes of this society, and made a part of its permanent records; also, that what has been said by the other members of the society respecting the deceased, be made a part of the records as well.

Dr. Archambault amended that they be sent to the Annals for publication.

Dr. Tucker:

Very rapidly are the older members of our society passing away. Dr. Witbeck was graduated from the Albany Medical College in 1866 and admitted to this society in 1868 and the chronological list shows that but five members admitted at an earlier date are still living. I began the study of medicine in 1867 and made the acquaintance of Dr. Witbeck soon after so that I have known him, and intimately, for nearly forty years. He was a man whom to know was to love. Of excellent ability and engaging manners he was endowed with an agreeable and cheerful disposition and these qualities made for him many friends and secured the confidence of his professional associates and patients and by both of these classes he was held in high esteem and greatly beloved. There was much in his life which contributed to his happiness but he had also his trials and was called upon often to suffer but he bore such trials as came to him with patience and fortitude and was ever inspired by hope. He rests from his labors and he leaves behind him a fragrant memory and, in many hearts a deep regret though mitigated by the recollection of his many virtues and admirable traits.

Dr. Daunais:

On this solemn occasion we are met here to give voice to the deep grief we feel in the loss of an esteemed member, Dr. Witbeck. At such

times the tongue never can give utterance to the deep-seated feelings of the heart. And so soon after this sad event while in the first blush of our grief it is hard to realize that Dr. Witbeck is not amongst us as in the past, and we are totally unable as yet to grasp our loss in its fullest extent. This is always so. Contemporaneous history nearly always fails to give just due to its great men. It is only after years have passed away that the greatness of the man shines forth in all its splendor, and we gladly acknowledge the usefulness of the life that has been lived by the deceased.

So in after years the full, ripe meed of praise will be given our deceased member, and this society will gladly accord to him his just due. To us of his home city who were so closely associated with him socially and professionally the loss seems great indeed. He was a great practitioner and the soul of conscience in the performance of his duties.

That he was respected and loved by all is readily understood when one knew the man. As dean of the Cohoes Hospital staff we grew to acknowledge his splendid ability and eminent worth and it was indeed a pleasure to be associated with him in the performance of the duties called for on the staff.

Recognizing his worth and usefulness as a citizen, honors were given Dr. Witbeck, and his home city has reason to be proud of the manner in which he performed his duties. As health officer, it fell to his lot to have the city for whose good health he was primarily responsible stricken by a smallpox epidemic, and through the heroic means adopted and put in force by Dr. Witbeck the scourge was checked, and the lives of our citizens safeguarded through his means.

His was a familiar figure in the city of Cohoes where he was known by all, and his passing away is indeed sincerely mourned. And here to-day we can do no other than voice the deep grief we feel by our simple language and let our hearts feel within themselves those other dear and tender memories that our tongues fail to convey.

Motion of Dr. Archibold as amended was adopted.

Dr. MacFarlane said: It seems to me to receive such tributes would almost make a man feel like dying, and a man's life must have been glorious to have received such commendations.

The Society then adjourned.

Andrew MacFarlane,
*President.*

Joseph A. Lanahan,
*Secretary.*

# Medical News

**Edited by Arthur J. Bedell, M. D.**

Albany Guild—Department of Visiting Nurses—Statistics for May, 1909. Number of new cases, 115; *Classified as follows:* Dispensary patients receiving home care, 12; district cases reported by health physicians, 5; charity cases reported by other physicians, 48; moderate income patients, 50; old cases still under treatment, 139; total number of cases under nursing care during month, 254. *Classification of diseases for the new cases:* Medical, 29; surgical, 8; gynecological, 1; obstetrical, 37 mothers and 35 infants under professional care; eye and ear, 10; skin, 2; throat and nose, 1; dental, 0; infectious diseases in the medical list, 9; removed to hospital, 4; deaths, 7.

*Special Obstetrical Department*—Number of obstetricians in charge of cases, 1; medical students in attendance, 0; Guild nurses in attendance, 2; patients, 1; visits by head obstetrician, 0; by attending obstetrician, 9; by students, 0; by nurses, 10; total number of visits for this department, 19.

*Visits of Guild Nurses* (all departments): Number of visits with nursing treatment, 1,194; for professional supervisions of convalescents, 351; total number of visits, 1,545. Cases reported to the Guild by 2 health physicians and 36 other physicians. Graduate nurses 7 and pupil nurses 7 on duty.

*Dispensary Report:* Number of new patients treated, 126; number of old patients treated, 450; total, 576. Number of clinics held, 87; eye and ear 9, with 93 patients; children 12, with 80 patients; medical 12, with 82 patients; lung 11, with 102 patients; surgical 12, with 84 patients; nose and throat 8, with 30 patients; gynecological 18, with 39 patients; skin and G. U. 8, with 52 patients; nervous 2, with 6 patients; stomach 3, with 6 patients; dental 2, with 2 patients.

The Detroit College of Medicine held its Forty-first Annual Commencement Thursday, May 27, 1909, at the Light Guard Armory, Detroit, Mich.

The American Hospital Association will hold its Eleventh Annual Conference at the New Willard Hotel, Washington, D. C., September 21-24, 1909, at which time the following papers will be presented, opening with address of welcome and the President's address:

(1) "Hospitals from the Patient's Point of View," Dr. Gilman Thompson, New York City. (2) "The General Hospital and the Orthopedic Patient," Dr. A. R. Shands, Washington, D. C. (3) "The Hospital and the Patient of Moderate Means," Dr. Frederick Brush, New York City. (4) "The Hospital and the Public," Mr. Del. T. Sutton, Editor *International Hospital Record,* Detroit, Mich. (5) "Education and Law for Nurses," Dr. R. M. Phelps, Rochester, Minn. (6) "A Cost System for Hospital," Dr. Thos. Howell, New York City. (7) "State and City Appropriations for Voluntary Hospitals," Dr. S. S. Goldwater, New York City. (8) "Suggestions in Connection with Hospital Construction," Dr. R. W. Corwin, Pueblo, Col. (9) "Relations between the Architect and

the Doctor in Planning a Hospital," Dr. Chas. P. Emerson, Clifton Springs, N. Y. (10) "Some Mexican Hospitals," Bertrand E. Taylor, Esq., Boston, Mass. (11) The Report of the Special Committee on the Training of Nurses, Dr. John M. Peters, Chairman. (12) Report of Committee on the Development of the Association, Dr. John A. Hornsby, Chicago, Ill. (13) Report of Committee on Hospital Efficiency, Hospital Finance, and Economics of Administration, Dr. R. R. Ross, Buffalo, N. Y. (14) Report of Committee on Hospital Construction, Dr. H. B. Howard, Boston, Mass. (15) Report of Committee on Medical Organization, Medical Education, and Hospital Progress, Dr. Rupert Norton, Baltimore, Md. (16) Report of Committee on Out Patient Work, Miss Maud Banfield, Philadelphia, Pa. (17) Report of Committee on Uniform Accounting, Rev. Geo. F. Clover, New York City. (18) Exhibition of Charts and Printed Forms from General Hospitals and Other Institutions, Miss Emma A. Anderson, Boston, Mass.

Alaska-Yukon-Pacific Exposition. The Management invite all visiting physicians to have their mail sent in care of the Emergency Hospital at the Exposition where the late Medical Journals will be on file.

The International American Congress of Medicine and Hygiene will be held in Buenos Ayres, in May, 1910. The Congress will be of an international American character, the government and scientific men of the three Americas being invited. The Congress will be divided in the following sections: (1) Biological and fundamental matters. (2) Medicine and its clinics. (3) Surgery and its clinics. (4) Public hygiene. (5) Pharmacy and chemistry. (6) Sanitary technology. (7) Veterinary police. (8) Dental pathology. (9) Exhibition of hygiene.

The American Medical Editor's Association held its Fortieth Annual Meeting at the Marlborough-Blenheim Hotel, Atlantic City, N. J., June 5th to 7th, at which time the following program was presented: President's Address. "Some Danger Signals in Modern Journalism," T. D. Crothers, M. D., Hartford, Conn. "Abstracts and Condensations of Medical Literature," David Walsh, M. D., F. R. C. S., London, England. "Book Reviews," James P. Warbasse, M. D., Brooklyn, N. Y. "Editorial Revision of the Titles of Medical Papers," F. H. Garrison, M. D., Washington, D. C. "Medical Journalism Technic," A. S. Burdick, M. D., Chicago, Ill. "Some of the Early History of the American Medical Editors' Association," W. C. Wile, M. D., Danbury, Conn. "Along the Line for Forty Years," H. O. Marcy, M. D., Boston, Mass. "Esperanto in Relation to Medicine," K. W. Millican, M. D., Chicago, Ill. "How and How Much Shall We Edit Contributed Articles?" Walter M. Brickner, M. D., New York City. "Progress of Medical Confidence," William Porter, M. D., St. Louis, Mo. "The Future of the Independent Medical Press," R. B. Gradwohl, M. D., St. Louis, Mo. "The Province of Independent Journalism," C. W. Fassett, M. D., St. Joseph, Mo. "The Response from Readers," W. A. Waugh, M. D., Chicago, Ill. "The Medical Editor as a Sane and Sound Critic and Monitor in Therapeutics," C. H. Hughes, M. D.,

St. Louis, Mo. "Journalistic Insight," M. M. S. Johnstone, M. D., Chicago, Ill. "Making the Public Partners in the Truths of Medical Science," T. G. Atkinson, M. D., Chicago, Ill. "The Question of Abstracts," Heinrich Stern, M. D., New York, N. Y. "The Editor and His Editorial," W. H. Neilson, M. D., Milwaukee, Wis. "A Journalist's Consideration of Blackmail and Libel," J. J. Taylor, M. D., Philadelphia, Pa.

The Medical Era's Gastro-Intestinal Editions. During July and August *The Medical Era* of St. Louis, Mo., will issue its annual series of issues devoted to gastro-intestinal diseases. The July number will take up the usual bowel disorders of hot weather and the August will be devoted entirely to typhoid fever. These issues always attract considerable attention. The editor will forward copies to physicians applying for same.

Personals—Dr. Patrick E. Safford ('84) has moved from Saugerties, N. Y., to 1649 Amsterdam avenue, New York City.

—Dr. A. J. Hambrook (A. M. C., '97) is now practicing at No. 171 Third street, Troy, N. Y.

Married—Dr. Samuel P. Brush (A. M. C., '08) and Miss F. Lela Morse of Troy, N. Y., were married May 27, 1909, at Troy, N. Y. They will reside at North Creek, N. Y.

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Died—Dr. John J. Ward (A. M. C., '69) died at his home in Ellenville, N. Y., May 22, 1909, from asthma, aged 75.

—Dr. Henry C. Potter (A. M. C., '44) died in California April 4, 1909, aged 86.

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## In Memoriam

### Charles E. Witbeck, M. D.

Biographical Sketch.

Dr. Charles Edward Witbeck, one of the foremost citizens and most prominent physicians of Cohoes, passed away at his home on the morning of Thursday, May 13, 1909, after a brief illness. On Sunday he went the round of his patients as usual. His condition became rapidly serious and his family, who were absent at the time, were hastily summoned. They were at his bedside when the end peacefully came.

Dr. Witbeck was born in the old village of West Troy, on February 22, 1844. He came of sturdy Dutch parentage, tracing his ancestry back to the year 1630. From them he inherited a vigor and fine physique which withstood the passing years of a strenuous and active professional career. Dr. Witbeck spent his boyhood in West Troy (now Watervliet). He attended the public schools there until the age of fifteen years, when he entered a private grammar school in Troy, where he remained three years. He then went to Trumansburg, N. Y., where he was a student in the

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office of Dr. Gregory. He then entered the Albany Medical College, and after completing the regular course was graduated and received his diploma in 1866. He came to Cohoes and began his practice in 1867. That he made no mistake in choosing the medical field for his life-work was more than evidenced in after years, as he became one of the foremost physicians of his day. His practice had in no long a time become extensive and lucrative. He acquired in the profession the *status* of one skilled in diagnosis and his counsel was sought after by the younger physicians as of the greatest value. At all periods of his career Dr. Witbeck's life has been inseparably associated with the history of Cohoes' growth and development.

On October 8, 1872, Dr. Witbeck was united in marriage to Miss Ella Lansing of Waterford, and of this union one son was born, D.r Charles L. Witbeck, of this city, who with his mother survives.

In medical circles the deceased devoted himself assiduously to his work. In the city of Cohoes in which the most valued years of his life were spent, he always took the deepest interest and in many ways contributed to its progress in material, social and moral directions.

For many years Dr. Witbeck was health officer of Cohoes and his terms of office were full of more than ordinary labor and responsibility as twice the city was visited by epidemics of smallpox. Efficient relief measures and promptness in meeting both crises revealed Dr. Witbeck's splendid executive ability as the danger was quickly averted under his charge.

He was identified with many organizations and as an officer in several had been frequently honored. He was dean of the Cohoes Hospital faculty, president of the Cohoes Hospital staff, and was a member of the staff of lecturers in the school of nurses. Dr. Witbeck was also a member of the American Medical Association, New York State Medical Society and Albany County Medical Society; the Holland Society of New York and Cohoes Lodge No. 116, F. and A. M. He was also a member of the Reformed Church and for a number of years had faithfully served his church in the office of elder.

The funeral was held at 2.30 o'clock on the afternoon of Saturday, May 15th, from the late residence and thence at the First Reformed Church. From 11 A. M. to 1 P. M. many friends viewed the remains at the house. The church service was conducted by Rev. Dr. O. H. Walser. The church was filled with mourning friends of the deceased physician. The local medical fraternity and the hospital nurses attended the funeral in a body, as also delegations from the Hospital Association, and Cohoes Lodge No. 116, F. and A. M.

The bearers were Edward D. Ronan of Albany, C. J. Metcalf of Troy, Henry A. Strong, James S. Clute, John Bullock, Egbert Lansing, Charles Douglass, William P. Adams of Cohoes. The remains were interred in the Albany Rural cemetery.

Resolutions of respect and appreciation of the doctor's life and work, and of sympathy to his family, were passed by the Board of Directors of the Cohoes Hospital Association, by the local medical profession, by the hospital medical staff, and by the Medical Society of the county of Albany.

J. L. ARCHAMBAULT.

## Alvarado Middleditch, M. D.

Dr. Alvarado Middleditch was born in the township of Boston, a few miles from Buffalo, New York, on February 8, 1829. His father and mother were of Vermont birth, the mother being a near relative of General Putnam of Revolutionary war fame.

Though sickly as a child he built for himself rugged health by farm work from the age of fifteen to twenty-one in Michigan, and after a few months of school teaching entered the Albany Medical College from which he graduated in 1856.

In the same year that he graduated in medicine he married Miss Pauline S. Griffith in Erie County, N. Y., and immediately thereafter removed to Waterloo, Iowa, and entered the general practice of medicine. He was eminently successful in the treatment of chronic diseases by electro-therapeutics and retired from active practice in 1896, and in 1903 moved to Pasadena, California, where he resided at the time of his death.

In 1882 he published his first book, "Homes and Home Life," treating of the subjects the title indicates, and in 1898 a smaller volume, "What Answer," treating of the probable immortality of the human race, was issued, both works being well received by the public and by literary reviewers.

Dr. Middleditch died April 26, 1909. Two children, Mrs. Florence Clubine, residing at Rialto, California, and Herbert G., now of Honolulu survive him.

It is said of Dr. Middleditch that the town of Waterloo, which was the scene of his active work, owes much to him for its establishment and progress, and he leaves many staunch friends to mourn his loss.

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## John J. Ward, M. D.

Dr. John J. Ward died at his home in Ellenville, N. Y., May 22, 1909, after a brief illness from asthmatic trouble. For fifty years he had been one of Ellenville's best known and most highly respected citizens, and his death is a distinct loss to the whole community. Few knew that he was seriously ill and the news of his death met with a general exclamation of regret.

Dr. Ward was born in Franklin, Delaware County, in 1833. Of the six children in his father's family, all sought and obtained by their own efforts an excellent education, and all were school teachers at the beginning of their careers. At the age of twenty-nine, Dr. Ward went to Ellenville and taught the village school and had for his assistant teacher, Miss Adaline Morse, daughter of William Morse of Ellenville. The acquaintance soon resulted in a marriage. He took up the study of medicine and graduated from the Albany Medical College in 1859. For a short period, about three years after beginning the practice of medicine, he lived and practiced at Bruynswick, Ulster County. He then returned to Ellenville, where he had a general practice. He was held in high esteem and was often called in consultation. Dr. Ward was for more than thirty

years connected with the health department of the village and town and was also an efficient member of the board of education and a life member of Wawarsing Chapter, F. and A. M., also a member of the Methodist Episcopal Church. Dr. Ward is survived by one son, Dr. Stanley Ward, of Hampton, N. H. His first wife died about seventeen years ago. He leaves surviving a widow, who was Miss Margaret Garrison, whom he married in 1895. One brother, Prof. Milan T. Ward, of Ottawa, Kan., a public educator, and a sister, Mrs. Harriet Flint, residing near Ottawa, survive. A sister, Mrs. Kate Burt, who entered the legal fraternity and who served in the government's law department at Washington for twenty years, died this spring at Washington.

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## George A. Cox, M. D.

Dr. George Aldomir Cox died suddenly at his home in Albany, May 21, 1909, from angina pectoris.

He was born at Gilbertsville, May 17, 1847; received his early education at Waverly Institute, Waverly, N. Y. He enlisted at the age of seventeen, on the 17th of December, 1863, in the Second Company of Heavy Artillery, N. Y. Volunteers. He was present at Lee's surrender and was mustered out of service June, 1865.

He returned to Albany and began the study of medicine with his uncle, Dr. James W. Cox, entering the Albany Medical College and graduating in 1868. He began practice with his uncle James W. Cox and, after a year and a half, removed to Cohoes where he practiced for one year. He returned to Albany in 1871 where he was engaged in active practice until the time of his death.

Dr. Cox was a member of the Homeopathic Medical Society of the State of New York; the Albany County Homeopathic Medical Society and of the American Institute of Homeopathy. He married Estelle Travis of Cohoes, N. Y., May 17, 1876.

Dr. Cox had a successful career as a homeopathic physician. His upright and honest dealing with all men won for him the confidence and respect of the community in which he lived. His devotion to and interest in his patients won for him the love and admiration of those whom he faithfully served.

For upward of forty years he was a familiar figure upon the streets of Albany as he went upon his daily work, and he was welcomed in the homes of our people as a good physician and kind friend. No one of our number had more devoted friends than he found among his patients. He was extremely modest and always unassuming; he had the natural instincts of a good physician; his daily conduct was governed by a large degree of common sense. In no way was he an alarmist, and at the same time he never hesitated to recognize a grave symptom. In his life he seemed to be governed by the precept carved over the Temple at Delphi—"Know Thyself." He knew himself and no pride of opinion or

false tendency on his part led him to assume responsibilities which in these days of special work should be more properly assumed by others. He was successful and faithful. What more can be said?

His disposition was bright, and he brought good cheer with him to those upon whom the shadow was cast. He did not seek companionship outside of his home. His life was devoted to his professional work, and he has left with us the clean record of honest professional effort and of highest integrity as a man.

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## Lemuel Cross, M. D.

Dr. Lemuel Cross one of the best known physicians of Schoharie County, N. Y., died at his home in Cobleskill, April 26, 1909. For several years he had not actively practiced his profession.

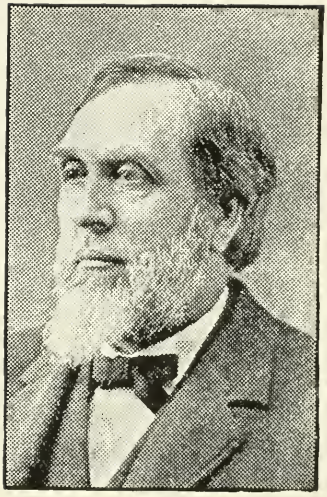
Dr. Cross was seventy-five years of age, and was born in Sharon. He was a son of Peter S. and Jane Brown Cross, and his ancestors were among the early settlers of this county. His mother was a granddaughter of Captain Christian Brown of Revolutionary fame. Dr. Cross's early education was obtained at the district school and later at the Charlotteville Seminary. He became a student in the office of Dr. Menzo White of Cherry Valley, and afterward with Dr. Haskins of Newport. Following this he entered the Albany Medical College, and was graduated from the institution in 1856. His first offices were at Canajoharie and Sharon. He went to Cobleskill in 1860, and for forty-five years continued an active practice of his profession.

During the Civil War Dr. Cross was examining physician for the military district of which Schoharie County was a part. For two years he was associated with Dr. Gleason and traveled with him as assistant lecturer.

Dr. Cross was always active in public school work, and was for several terms a member of the board of education. In politics he was an influential Republican.

Dr. Macdonald of Albany was at one time a student in the office of Dr. Cross, and it was with the utmost pleasure that the latter would refer to their association and friendship. It was a source of much satisfaction to him that Dr. Macdonald had reached such eminence in his profession.

Dr. Cross was three times married. His first wife was Miss Evelyn Thompson of Cobleskill. One daughter was born, who died several years ago. His second wife was Mrs. Agnes Freeman of Castle, N. Y. His third wife, who survives him, was Miss Therisa Hard of Sharon Springs. He is also survived by one sister, Mrs. A. B. Borst of Cobleskill; one brother, Augustus H. F. Cross of Sharon. Ernest E. Cross of Albany is a nephew of the deceased.



LEMUEL CROSS, M. D.

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## Original Communications

# THE INSANITY-DEFENSE FOR CRIME

*Read at the sixty-fifth annual meeting of the American Medico-Psychological Association, Atlantic City, N. J., June 1-4, 1909.*

By JOHN B. CHAPIN, M. D.,
*Physician-in-Chief and Superintendent, Pennsylvania Hospital for the Insane, Philadelphia, Pa.*

At a meeting of the Pennsylvania Association of Hospital Officers, it seemed to be an opportune occasion to call attention to some of the changes in recent years in the views and dicta held by the courts on insanity as a defense where crime was charged. On the occasion referred to, not only were physicians interested in a trial notable in many respects, but the community and the press engaged in discussions of the various and varying aspects of the crime that had been committed. It was not the first instance where a criminal act perpetrated by an obscure person, who might otherwise have made no contribution whatever to science or the elucidation of any legal problem, became an unwilling and unintentional center of a psychological storm. It seemed also an opportune occasion for an attempt to enrich and illumine (?) our already overloaded nomenclature by a term for which lexicons of the dead languages have thus far not been equal to furnish a scientific explanation. Perhaps if a more comprehensive name were desired, "modern insanity" might be used to stand for all forms not otherwise now classified or that may be discovered hereafter. Yet, if it is thought a classical term is to be preferred and is essential, the puzzle may be solved by the use of the term *psycho-typhosis,* "although the good old Greeks did not have the thing."

In reference to the paper which has been referred to, a number of cases were cited showing the tendency of the judicial mind to modify the rigor of the opinions of the courts of an earlier day.

Perhaps sufficient stress was not in those days laid on the instruction of the courts to jurors to give to the defendant the benefit of any and every doubt as to his mental state. If the courts of later years have been correct in their view, and there is no intention to question their justice, it is clear that counsel have had an immense advantage in the defense by calling a number of experts who, by their testimony and theorizations, have succeeded in creating a doubt to the extent of causing a failure of the jury to agree because of the apparent disagreement of scientific experts who express diametrically opposite views. The main issue of guilt or partial responsibility is clouded or confused by the contradictory testimony of experts, the principal effort being directed apparently to create a doubt in the minds of the jury, and then the court is asked that the jury be instructed to give the prisoner the benefit of that doubt. Whether such a course is purposely followed is not known, but the effect is quite suggestive as a precedent to be followed with a reasonable prospect of a successful defense, the degree of guilt not receiving consideration.

It is a sad commentary upon what is called science, but the legal profession is resourceful and quick to perceive an advantage that may come from what has been called sometimes a battle of the experts. While the number of experts to be called may be unlimited by the court, according to the usual practice, what can be looked for but a state of mental confusion in the minds of the jurymen, even if they possess a conscientious intention of endeavoring to do exactly right? The evident purpose in a case where there is a narrow margin is to create a doubt which, for many reasons, may give a jury the opportunity they may desire to acquit or disagree or unconsciously acquiesce in what is sometimes called the unwritten law. It may be a part of correct legal ethics, which might be noted here, that medical witnesses may be properly called as experts to state all that can be possibly presented either in the interest of the commonwealth or the defendant, leaving it to the court and jury to thresh out a conclusion. While this view of expert testimony may or may not be correct, the right of a defendant will usually be sustained and cannot be discussed here. It is, however, certainly true that the value of expert testimony has decidedly depreciated in the estimation of the laity, and we believe we may include the courts, because of theorizations that are not generally accepted, nor are they al-

ways founded upon well-established clinical experience. There are difficulties surrounding the nature and value of expert testimony, the method of introducing the expert upon the witness stand so that he may appear there absolutely free from bias from any reasons, all of which are recognized, but a solution has not been reached. We are content, at this stage, to notice in passing some of the embarrassments that surround these trials that are recognized by every physician who has had a trying experience on the witness stand, nor shall we attempt to discuss his psychological state, which remains as an interesting subject for speculation after the ordeal has been passed, except to allude to it.

In a former paper referred to, five trials for homicide were cited in which insanity was alleged to exist at the time—even at the moment only—of the commission of the crime. All of the defendants were acquitted. In the opinions of the experts, whose judgments seemed to be accepted, they were cases of so-called mania transitoria, emotional insanity, epileptoid or unconscious states, irresistible or uncontrollable impulse or perhaps it might be as correct to call them impulses that were not controlled.

We now propose to consider another group consisting of cases in each one of which insanity was alleged by experts to exist at the time the crime was committed. This group embraces members who were the counterparts, in many respects, of the group heretofore alluded to, yet all were convicted notwithstanding the usual contradictory testimony of experts. How these different results or verdicts were reached is a fair question for consideration. Were they probably due to the fact that the array of contending experts was not large enough to create doubts that would otherwise have resulted in a mistrial? Were they not due rather to the fact that the court and jury drew a truer dividing line between insanity or disease and the unbridled operation of human passions which are implanted in all, but do not necessarily imply irresponsibility from disease because they are or ought to be controlled? These cases, and other similar cases that might be cited, present a fair question: Shall cases of so-called "modern insanity," which on examination are but instances of the operation of ungoverned passions, wholly escape punishment? Shall persons who have committed sudden acts of violence or made homicidal attempts without apparent motive, and with no history of insanity, be constructively declared insane because insane persons do commit similar acts of violence? Are we as physicians expected

to furnish a hypothesis of the existence of insanity, even in doubtful cases? Do they come within that department of knowledge which the alienist is supposed to possess?

A brief reference without detail will be made to a group consisting of sixteen cases or persons charged with homicide in courts of New York, Pennsylvania, and District of Columbia:

No. 1. B. A convict, making his escape, turned upon an officer in pursuit, seized his pistol and killed him. Defense, epilepsy. A malingerer.

No. 2. T. Shot his wife in a public park by firing five shots into her body. Alleged cause, refusal of wife to live with husband, and jealousy. Alleged to have been an epileptic.

No. 3. I. B. Killed his paramour, because she refused to continue her illicit relations, by cutting her throat, nearly severing the head from the body. Defense, emotional insanity from jealousy.

No. 4. S. Killed a young woman, to whom he had been under engagement of marriage, and her brother in a public street by shooting. Defense epilepsy and dementia.

No. 5. H. A degenerate boy killed a small boy companion by stabbing and torture after Indian methods and then placing the body in a stream of water, covered it with stones. Defense, moral imbecility.

No. 6. T. Shot and killed a banker in a contention about a money transaction. Defense, insanity.

No. 7. C. Killed the foreman of a factory because, on application, he was refused employment. Defense, insanity.

No. 8. S. Killed a young girl who refused to continue illicit relations with prisoner by cutting her throat, nearly severing the head from the body. Alleged epilepsy.

No. 9. H. Killed a farmer in a field of his farm by shooting with a rifle. Had some contention about a business transaction, Defense, inherited insanity.

No. 10. W. Killed his landlord by discharging a load of buckshot at short range into his body during a contention about an extension of a lease that the owner declined to make. Defense, emotional insanity, and insane at the moment he pulled the trigger.

No. 11. B. A convict killed a prison guard when angered by a reprimand for neglect of duty. Feigned insanity.

No. 12. W. Charged with killing three children and husband by administration of poison at intervals of time, on whose lives she had procured and collected life insurance money. Defense, insanity and irresponsibility at menstrual periods.

No. 13. S. Killed mother and assaulted sister with a hatchet, secured money the mother refused to part with, arrested in a house of prostitution. Feigned insanity.

No. 14. McN. Killed a young woman, after entering her bedroom unnoticed, by shooting with a pistol purchased a few moments before the killing. The young woman had declined the attention of the defendant. The defense was epilepsy.

No. 15. H. Case of murder by shooting. Alleged epilepsy.

No. 16. B. Killed a fellow workman in an outburst of frenzy by repeated blows with an axe, as he alleged, from momentary apprehension of personal danger.

All of these cases were presumably fairly tried. The defense was insanity, supported by such expert testimony as was available. The forms of insanity were alleged to be transitory mania, irresistible impulse, epilepsy, emotional insanity, or other forms. The plea was supported in each case by a variety of episodes in themselves of no significance and having no connection with each other, and such as might be found in the lifetime of many persons who have not committed any crime; such as, an unusual expression of the eye or face, irrelevant remarks and actions occurring only occasionally. Without exception, no evidence of any delusion was presented, nor was there a single occurrence of a convulsion shown in the cases of alleged epilepsy. There was, however, in the large majority of the cases, perhaps without exception, a history of progressive moral and mental degeneration due to alcoholic habits, vicious habits and excesses, low living and associations. Several of these persons were addicted to sexual excesses, or had disturbances of their marital relations. The crimes committed were marked also by excessive ferocity that usually characterizes the aroused passions in such cases. There was a sudden, emotional, psychical discharge, or eruption, beginning and ending with the criminal act, a common history of many crimes committed by habitual criminals.

The defense in these trials is commonly a collection of erratic acts which are interwoven into a hypothetical question, but in themselves of no significance to the medical mind, yet they are intended to create a doubt which shall be put to the credit of the defendant. Insane persons do commit criminal acts, but it does not follow nor should it be assumed that every killing is the act of a lunatic. Sane persons are constantly doing what the insane do. A single act does not necessarily imply insanity. As physicians, in our daily clinical observations, we endeavor to ascertain what is or has been the normal condition of our patient, and seek to find what has been the change or departure from the normal state, and when it commenced. It is the rule that insanity is not a sudden instantaneous change. If it has developed suddenly or instantaneously, as is sometimes stated, there may have been omissions to note the import of its threatened approach, or the whole

history has purposely been withheld. The only rule upon which we can act or come to a conclusion in these cases is that there is always a development stage of insanity as in our clinical experience in the observation of ordinary diseases. This rule we observe in the discrimination between insanity and shamming. The condition of insanity may also consist of an exaggeration of the ordinary normal condition of some persons, and even then the individual may have crossed the shadowy line between sanity and insanity.

Habit is defined as "a tendency toward an action or condition which by repetition has become spontaneous." Habit may even become an abnormal condition. We constantly refer to vices that become established by frequent repetition as vicious habits, vicious indulgences, always resulting in gradually weakening the will-power, or power of self-control, by frequent repetition. The inculcation of a moral code tends, on the other hand, to a corresponding increase of strength of the will-power and self-control, in the direction of the formation of decent habits of living and acting which are the foundation of social order and absolute justice. The formation of habits of living, of thought and indulgence of passions in contravention of the moral and written code enacted for the welfare of the community, are offenses which will surely be followed by some expiation or atonement. If decent habits of living and acting in the varied relations of life can be formed and strengthened by practice, so the indulgence of an opposite course may intensify evil passions until they are beyond control and obliterated. If an individual shall knowingly elect to live the latter life, is he to be considered the victim of disease and wholly irresponsible for his misdeeds? Are such persons to be pronounced emotionally insane if the criminal act is in itself the only evidence of its existence that can be presented?

In the classification of the faculties of the human mind, the emotions or passions, many of which are instinctive, are commonly referred to as including love, anger and frenzy, envy and jealousy, hatred and revenge. They have been called the instinctive passions in distinction from those that are acquired. With one exception, perhaps every one in the list of the sixteen homicides we have cited can be classed as a crime committed during a paroxysm of some one of the passions referred to. As a class, these criminals were pitiable subjects to look at and contemplate. They were victims of the indulgence in evil passions, a

tendency to which was possibly transmitted by a vicious inheritance or was acquired by environment and intensified by habit and frequent unrestrained indulgence. The crimes were of an atrocious character, marked by excessive ferocity. The victims were weak and defenseless, incapable of self-defense against cowardly attacks. The defendants were degenerates or degenerating, or in other words, had passed or were passing from a higher plane to a lower plane of living and acting. That all persons so inclined may pass into an abnormal or pathogenic condition is also to be conceded. In these cases, the proper sphere or limitation of the alienist would seem to be to differentiate between what is disease and what is none other than a paroxysm or exhibition of one of the passions which have been allowed unrestricted play. While the alienist may properly be asked to define insanity, and what experience and authority may teach, he is not best qualified to determine, authoritatively or as an expert, the operation and limitations of the human passions. Indeed, the alienist is not as well qualified as the judges who sit to interpret human actions as well as laws framed in the interests of social order and for the protection of society. It tends to lower the estimate of value of expert testimony that, as a rule, two, four or six experts can be found to testify to opposite conditions. Possibly this is a state of things in which the methods of conducting trials tend most to produce the unsatisfactory conditions that now exist for which the medical profession is not wholly responsible, but the responsibility should be placed on the judges. If these conclusions are to be considered as the confession of one who has had his share of experience, he should be pardoned if he enters a protest against lowering the standards of his profession. It is time that we should seek to elevate our standards or so-called science, above that of a marketable commodity which has a price. We should stand by our professional standards and not be a party or parties to widen the meshes of laws through which men wholly or partially guilty may pass unscathed.

The human passions are implanted in man for a wise purpose. They are instinctive and are intended for the protection and preservation of the species. Their proper operation may tend to the development of absolute justice between man and man and have a proper function. Everyone must also be responsible for their proper use and guard against their abuse. In a perfect state of things, there could be no abuse of the passions—no ex-

cessive demonstrations. If crimes are the results of abuse of human passions or are intensified by a vitiated inheritance, as we all concede is possible, so it must be also stated that human law has its imperfections and has not been framed or administered so as to deal with all the varied and complex happenings incident to society with absolute justice. We are willing to admit that psychological conditions do exist or may arise suddenly from exaggerated or intensified passions or emotions which explain some crimes, but are not to be considered as a condition of disease. Are there not psychical conditions that do account for crime, but do not amount to irresponsible states in the same sense that insanity or disease renders the individual wholly unconscious or irresponsible, as from a delirium or a delusion? Are there not psychical states that may modify responsibility in a *degree,* but not *wholly* excuse a crime or violation of laws that are established for the protection and welfare of society? These cases deserve a careful scrutiny, not that they are states of disease, but of subconscious cerebration that may and ought to modify responsibility. In sudden emergencies and critical moments, in a time of sudden and extreme peril, as in battle, persons have been known to do things of which they state subsequently they have no recollection—actions which resulted perhaps in the preservation of life, yet concerning which no details could be recalled. In such cases, it can be stated there is a suspension of action of certain mental processes. While we have thus done no more than attempt to describe the situation, yet can we say that insanity existed if that is the whole history of a case? Yet such has been asserted under a hypothesis that epilepsy or epileptoid conditions perhaps existed, although not a single convulsion had ever been observed.

We are willing also to concede what all experience confirms, that a habit of indulgence in uncontrolled passions, like other habits of self-indulgence, may induce a pathological condition or a change in the character. It is also a common experience to find that passionate outbreaks are often associated with the alcohol habit, some sexual conditions or disturbance of the marital relations, or they have the marks of some inherited predisposition. They may show even some physical marks of degeneracy, as many persons can show, which have come down from former generations. It is a very common experience, when a crime has been committed by one of the class that has had a manner of living and thinking in a way calculated to cultivate and intensify vicious passions, to

hear it stated that the deed was done in a state of unconsciousness and no recollection of it remained. What shall be the relation of the alienist to the case if called upon to examine such a criminal? He may properly seek to determine in his own mind whether the person was insane, as he would do according to the methods which prevail in his hospital, and as all authorities approve. He may seek to differentiate between mental disease and an act performed in an ebullition of anger, jealousy, envy, or any unconquered passion which, for the time, had the mastery. He may approach the question from another position and ask himself if, with a history of the case presented to him, he could and would have given a certificate of insanity, before the commission of the crime, as a warrant for a commitment and detention in a hospital. Some of us may recall instances where a person acquitted of crime because of insanity has remained in a hospital only long enough to have papers and certificates of recovery from insanity prepared. Have such proceedings contributed to the fallibility or infallibility of expert testimony? Why may not the expert make a distinction between insanity as a disease and criminal acts done under the impulse of anger or some one of the passions, leaving to the court if it should be admissible to measure the degree of responsibility? If the courts were allowed a wider latitude in disposing of those cases and determining the degree of responsibility, there would be fewer mistrials to record. Here is a field that the penologist may properly enter for study with the hope of making provision for measuring, so far as human ken can go, the various degrees of responsibility for crime. The ebullition of human passions, it should be remembered, does not constitute insanity or mental disease, and the alienist ought not to suppose he is indispensable in their investigation beyond determining whether mental disease exists. There should be other evidences of disease beyond the criminal act. Neither does environment or heredity necessarily alone presuppose a state of irresponsibility. Justice and social order, as society is constituted, have claims for their preservation even equal in importance to the solution of merely scientific problems or the issue of a battle of experts.

On the occasion of the commission of an atrocious crime, when no other line of defense seems available, there remains what seems the last resource, the plea of insanity. Our profession seems to be a sort of residuary legatee of such contention, and is often relied upon to create the reasonable doubt that will free the de-

fendant from all responsibility. This outcome should not continue to be the opprobrium of our specialty. It has occurred partly from an erroneous confusing of the manifestations and explosions of passions with acts performed in a state of insanity; the usual methods of conducting cases by the judges; and the manner of selecting experts. If there could be some amendment and improvement upon present methods of introducing expert testimony, and if it were practicable to enlarge the degrees of criminality and responsibility, society would have additional security. Much of the dissatisfaction, and we might add the scandal, that grows out of the present system might also be avoided. The certainty of conviction for crime is one of the great safeguards against its commission. We all know that large numbers of cranks and others who allow their passions unrestricted sway are held in check only by the fear of punishment or some restriction of their personal comfort or liberty. It must be remembered there still remains an appeal for merciful consideration even after conviction.

The prominent points which have been presented in this paper perhaps in a desultory way have been suggested by participation as a witness or spectator in court, or by perusal of public reports of crimes and the trials that followed. In reflecting upon them it appears that the important or dominating thoughts may be condensed in a résumé as follows:

I. From common observation and experience, we recognize the fact that indulgence in passions—which, by the way, are common to us all—may result in a loss of self-control and gradual degeneration which is acquired and not due necessarily to disease, inheritance or environment. If this is true of individuals, it is true equally that whole communities and even nations may degenerate to a low state, or be destroyed from a lax administration of justice. Human and divine laws are intended to secure the preservation of social order and the betterment of a community. On their execution depends the security of human life. If self-preservation is a maximum or principle which may be a sufficient defense of the individual, in a larger sense, self-preservation may be a warrant for a community to adopt extraordinary measures for its protection as well as for the prevention of crime.

II. If persons actually insane have been convicted of capital crimes, which we believe has been of rare occurrence it has more frequently happened that a crime committed in an exacerbation of some one of the human passions has been condoned mainly

through a doubt of the sanity of the criminal created by the evidence of medical witnesses who would not have felt warranted in signing a certificate of insanity for detention in a hospital, as no single symptom had been presented that antedated the criminal act.

III. In the opinion of some, the trial judges have freely opened the way to the introduction of extraneous issues; have permitted the introduction of highly technical questions, the use of scientific terms that do not imply necessarily advances in psychiatric knowledge, nor are universally accepted. It is admitted the names are new discoveries, unfamiliar, beyond the comprehension of the court and jury, in themselves having no significance, yet they have a mysterious influence, and work the court into a state of doubt or scientific indigestion. It is believed that insufficient attempts are made to differentiate the operation of the uncontrolled human passions from what we ordinarly understand to be the disease or condition we call insanity. Some amendment or change in the present practice of introducing the medical witness upon the stand without bias or the suspicion of it would be welcomed with great satisfaction, but it might be regarded as a gratuitous offer for a medical man to make suggestions about legal procedures that belong properly to the courts. Neither is there any limit to the number of experts that may be summoned in the present practice, but, on the other hand, there is a tendency to an increase. In a trial in a neighboring city sixteen experts were summoned, eight for the commonwealth and eight for the defense. It is submitted to you whether this is a reflection on the certainties, or does it show the uncertainties of our science?

IV. There remains yet another problem that the penologist must study, viz., whether it is possible that any modification of the penalties for crime can be made that would more justly recognize varying degrees of criminality?

V. Finally, the question and thought will occur, must the helplessness of man to approximate absolute justice in dealing with the class of cases we have been considering be confessed, and their disposition passed beyond all earthly courts to a Higher Tribunal hereafter?

# THE SELECTION OF A SITE FOR THE ALBANY TUBERCULOSIS HOSPITAL.

By ARTHUR T. LAIRD, M. D.

The need of a tuberculosis hospital for the city of Albany is now quite generally recognized. Albany has next to the highest death rate from tuberculosis in the state, not excluding Greater New York. The average number of deaths from this disease each year during the past ten years has been 226. About 350 reported living cases are on record at the office of the Bureau of Health. Unreported and unrecognized cases make it almost certain that there are in the neighborhood of one thousand cases in the city alone to say nothing of the county.

The proper location of the hospital has not yet been settled. Several sites have been proposed, the Helderberg mountains, various locations in the towns of Colonie and Berne, the sand plains west of Albany and the grounds of the Albany Hospital.

Each of these situations presents various advantages and the choice should be determined by a careful study of the purposes which a tuberculosis hospital should fulfil.

The greatest possible protection and education of the public should be secured together with the most efficient care and treatment for the patient.

There can be no question that the greatest immediate need is suitable provision for the care of advanced cases and they should be first considered in planning for the hospital.

## *The Value of the Hospital for Advanced Cases.*

One of the principal lessons of the recent International Congress on Tuberculosis was the recognition of the great value of the hospital for advanced cases in the prevention of tuberculosis. Patients with far advanced disease, gradually becoming weak, helpless and careless are often physically unable to take the proper precautions necessary to destroy the countless numbers of germs which they cough out or expectorate daily.

Removal to a hospital gives them the best chance of cure or relief from suffering and removes them as centers or foci of infection from their families and neighborhood. As in other infectious diseases if the focus of infection can be removed the problem of eradicating the disease from that particular locality is much simplified.

Home treatment, day camp treatment, dispensary treatment are all unsatisfactory substitutes for hospital treatment. Ignorant and careless consumptives cannot be made safe members of the community. The hospital should be located where such patients can be most readily induced to go and where they can be under the most efficient supervisions.

The following resolutions were adopted at the closing session of the Congress:

Resolved: That we urge upon the public and all governments the establishment of hospitals for the treatment of advanced cases of tuberculosis.

2. The establishment of sanitaria for curable cases of tuberculosis.

3. The establishment of dispensaries and day and night camps for ambulant cases of tuberculosis which cannot enter hospitals and sanitaria.

The International Congress thus put itself on record as recommending the construction of hospitals for advanced cases as the most urgent need. The resolutions are a condensed statement of the views of many eminent authorities.

Koch (*Zeitschrift für Tuberkulose,* 1908, xiii, 382), as early as 1882 advocated segregation of such patients.

Trudeau (*Journal of the Outdoor Life,* April, 1909), writes: "Advanced cases are the most fruitful source for the spread of the infection and hospitals for advanced cases are most urgently needed."

Locke (*Boston Consumptives Hospital Department, Second Annual Report*), says: "The dangers of the community increase in direct proportion to the advance of the disease process in the individual. Among the very poor no measures carried out in the home can certainly be effective in preventing the propagation of the disease; neither can the patient receive proper care in his home. The first aim, in Boston, has been the establishment of a hospital adequate to the needs of the far advanced, as it seems to be the most pressing need.

Newsholme, Medical Officer to the Local Government Board, of England, in a very complete paper before the International Congress (see *Charities, November* 7, 1908), which was illustrated by many charts and government reports shows conclusively the importance of advanced cases in disseminating the disease and the value of hospitals for them in decreasing its prevalence. He

writes: "There can be no doubt that advanced cases are more infectious than the earlier ones and the chief immediate preventive measure against phthisis is the institutional treatment of advanced cases of the disease.

Flick of Philadelphia (Fourth Annual Meeting of the National Society for the Study and Prevention of Tuberculosis), said: "The most important factor in the prevention of tuberculosis, in my judgment is the hospital for advanced cases as was proved in England years ago. I believe if we could isolate all cases within three months of death, this one measure alone would accomplish the extermination of tuberculosis in due time.

These men are the best known authorities on the subject and from the nature of the case their can be little doubt that next to most radical changes in our manner of living, the provision of sanitary homes for the poor, and the removal of predisposing causes of the disease such as vice and pauperism, the hospital for advanced cases is our most efficient means for fighting the disease.

The Albany Tuberculosis Hospital should then be designed primarily for advanced cases. They cannot be satisfactorily provided for in an institution designed primarily for incipient or quiescent cases. On the other hand certain patients in the early stages of the disease require most urgently skilled hospital care and provision should be made for them. Their presence in the institution especially when they are improving would be a great source of encouragement to the more advanced cases.

### *The Need of Hospital Provision for Acute Cases in the Early Stages.*

During the early course of the disease conditions may arise which require as careful nursing and medical attention as the emergencies of typhoid fever, pneumonia or appendicitis. Upon the efficiency of this care depends in large measure the patient's prospect of recovery. Hemorrhage from the lungs necessitates most painstaking watchfulness. The acute onset of the disease with high fever demands skilled treatment as truly as similar conditions in diphtheria or scarlet fever. The occurrence of tuberculous pneumonia is a serious complication and the patient should be given the advantage of every modern appliance for comfort and safety. Throat involvement requires special treatment. There are many other conditions which may arise that call for hospital care.

Such care is difficult to obtain in institutions designated primarily for quiescent or arrested cases. At such sanitaria, planned for patients who live in tents, shacks or cottages and come to a main dining room for their meals and who are expected to take a considerable amount of exercise such emergencies must be met imperfectly or a hospital with hospital conveniences must be built in connection with them. Even at Dr. Trudeau's well known sanitarium for incipient cases it has been found necessary to build an expensive infirmary, practically a small hospital where acute cases may be taken and receive nursing and treatment which cannot be given in the cottages. There must necessarily be in cheaply built camps without suitable toilet arrangements or appliances for caring for patients in bed a considerable amount of avoidable suffering. There certainly is a great deal of it among consumptives who remain at home. This is due in part to the old notion that the disease is incurable and therefore, it isn't worth while to do much for the patient and in part to the hardly less mistaken notion that fresh air and abundant food can make the patients well without special nursing and suitable medical supervision.

*The Necessity of Hospital Provision for Doubtful and Predisposed Cases.*

A convalescent home maintained in connection with a general hospital is most desirable. Convalescents from pneumonia, typhoid fever, etc., should be there rather than be kept in the hospital or be sent home before their health is established. Such an institution, the Brehmer rest has been established at Ste. Agathe des Monts, Quebec, Canada, with the express purpose of preventing the development of tuberculosis in those who are predisposed to it on account of having just passed through some other serious illness. The vitality of such patients could be increased by out of door treatment in a special department of the hospital where they would not come in contact with tuberculous patients.

Whatever provision is made for convalescents from other diseases there is urgent need for a place where doubted cases can be placed under appropriate treatment without having incurred the stigma of being sent to a sanitarium for tuberculosis. Such cases must now either receive inadequate treatment at home or be immediately sent to Saranac Lake or some other health resort often at great and sometimes a needless expense.

*Provisions for Cases in the Quiescent Stage without Fever.*

Most sanitaria and camps are planned for the care of such cases. A certain amount of outdoor exercise may be permitted and under supervision may be distinctly beneficial. Light work may be done, gradually increasing until the patient is fitted for a return to active or at least useful life. Various out of door amusements should also be provided. A camp or sanitarium of this kind may be maintained in connection with a hospital for advanced or acute cases or it may be conducted under the same management at some distance. Patients who have been in the Brompton Hospital, London, for three months and are found to be in suitable condition are sent to the Frimley sanitarium. Tuberculosis patients from the Hartford Hospital Tuberculosis Wards are sent to the Wildwood Sanitarium which is under the hospital management. Acute cases requiring special care can be returned to the hospital for a temporary or continued stay.

Tuberculosis patients requiring treatment are then of several classes:

Those in the advanced stages of the disease.

Those in early stages showing acute symptoms.

Predisposed and doubtful cases.

Those in the quiescent stage without fever.

Provision should be made for all of these but the most urgent need is a *hospital* for the care of the first three classes.

*Advantages of the Albany Hospital Site.*

1. Accessibility. (a) For patients.—The more patients with advanced disease can be induced to enter the hospital and remain there the greater will be the benefit to the city by the removal of sources of infection. Many more will go to a place near by readily visited by members of the family and friends than to a sanitarium at some distance as in the Helderbergs. Albany is readily reached from all parts of the county and a site near the Albany Hospital would be more accessible to patients from Watervliet and Cohoes than one in the country.

(b) For friends.—The fact that friends and members of the family could visit the patients would make them more willing to send them to the hospital. The educational value of such visits to the community is great and would be an important factor in disseminating information regarding methods of prevention and

cure. The more accessible the site the greater will be the education of the community.

(c) For physicians.—A large proportion of the physicians in Albany visit the Albany Hospital almost daily. The surgeons and specialists in various lines would always be available for consultation and the very best medical advice could be secured at any time. An institution located at a distance would lack this advantage and special trips to it would be necessary for the physicians attending it. At the Pine Tree Camp located in the Helderbergs some years ago the medical care of the patients was for a considerable time entrusted to a medical student. It was difficult to get physicians to visit an institution at so great a distance regularly. In a county institution out of Albany a medical superintendent would have to be employed at a considerable salary.

(d) To public utilities.—The city water and sewerage system are already installed in connection with the hospital and their connection with a tuberculosis pavilion would be a simple matter.

2. Economy. (a) Nursing.—In a private institution at some distance from Albany the nursing would have to be done by trained nurses paid good salaries. At the Albany Hospital the nursing could be done by pupil nurses as in the other departments of the institution.

(b) Superintendent's salary.—A county hospital at some distance or a private institution would need to employ a medical superintendent at a fairly large salary. The superintendent of the Albany Hospital could add the care of the tuberculosis pavilion to his other duties with comparatively little extra labor or expense.

(c) Purchase of supplies.—Supplies purchased for the tuberculosis department would be secured at lower rates on account of the connection with the general hospital and the cost of special transportation of coal and other neccessaries to a remoter site would be saved. Food cooked in the main kitchen of the hospital could be supplied to this department as is now done for the contagious hospital.

(d) The problem of providing light, water supply and drainage, and perhaps heat also would be comparatively small on account of the conveniences already available.

(e) For any other site land must be purchased unless charitably disposed individuals donate it. About the city hospital there is a considerable amount of land belonging to the city or county which might be secured free. There are at least five available sites in connection with the Albany Hospital.

3. Efficiency. (a) Medical treatment.—The services of the entire staff of the Albany Hospital would be available. Specialists in various lines would be always at hand. Suitable treatment for throat cases and for the various complications and emergencies that arise would be readily obtained. In case surgical skill was needed nearness to the hospital would be most desirable. In camps and sanitaria it is often impossible to give very sick patients the individual care and skilful attention they need. It is beyond question that certain cases lose their chance of recovery on account of the lack of such care at critical times. The Albany Hospital has one of the best equipped plants in the world and is provided with modern appliances of every sort. It is quite possible that the treatment given in its tuberculosis department might be made more satisfactory and efficient than similar treatment in any other institution.

An institution connected with a medical college as is the Albany Hospital is much more likely to be modern and thorough in its treatment than one not so affiliated.

(b) Nursing.—The quality of the nursing furnished at the Albany Hospital under the direction of the training school is well known. We do not hestitate to entrust to it the most critical surgical conditions and serious medical cases. Such care would not be obtainable in any other institution without great expense. Camps, shacks and sanitaria designed primarily for quiescent cases without fever would not provide it and it would not be very easy to detail Albany Hospital nurses to work in them.

The question of suitable nursing is of prime importance. During emergencies, such as hemorrhages, acute febrile attacks, broncho-pneumonia, etc., lives may be saved by good nursing or lost from the lack of it. A patient with high fever from pneumonia or typhoid fever is most carefully watched and nursed, but if it is due to tuberculosis he is too often neglected.

In shacks and imperfectly equipped camps there are not usually enough nurses to give much special care to the advanced cases. There is sometimes a feeling that earlier cases are more worth attention and the patient with advanced disease suffers from the lack of simple ministrations which would make him vastly more comfortable. Baths, alcohol rubs, tasteful arrangement of dishes to tempt the appetite, various other comforts would often relieve suffering greatly.

4. Public Service in Preventing the Spread of Tuberculosis. (a) Education of the public.—*Patients* would be taught the best methods of preventing infection. The regulations regarding disposal of sputum, avoidance of droplet infection would be drilled into him and should he leave the hospital at any time to return to his home he would be a much safer companion than before he received his course of instruction at the hospital. He would also know better how to care for himself.

*Friends* of the patient visiting him would also learn much regarding these matters and the lessons would be taught much more effectively than they possibly could by tracts or lectures. A readily accessible hospital would do more good in this way than one situated at a distance.

*Nurses* would receive special instruction in tuberculosis nursing, a very important branch of their instruction. Tuberculosis nursing differs in many ways from ordinary nursing and the addition of this course to the curriculum of the training school would make it more complete. On account of the large number of nurses in the training school one nurse would be for a comparatively short period of time in close contact with advanced cases. This is an important consideration as there is no question that nurses are more exposed to the infection than any others who come in contact with tuberculosis patients.

*Medical students* would be trained in the diagnosis and treatment of the disease. One of the principal reasons for the widespread prevalence of tuberculosis is the inability of physicians to recognize it in its early stages. If the hospital can help in any way in training doctors to recognize incipient tuberculosis, it will render great service, not only to this but to other communities. Systematic instruction could be given to the students of the Albany Medical College, of whom thirty or forty each year begin the practice of medicine in various localities. This would be practically impossible at distant private institutions, and the opportunity for doing a great public service would be lost. The education of the public should begin with the education of the physician. Bonney and others consider this one of the most important factors in the prevention of tuberculosis.

*The public* generally would be benefited by spread of knowledge regarding the prevention and cure of tuberculosis through the channels mentioned.

b) *A location near a scientific laboratory* such as the Bender

Laboratory is most desirable. Many problems regarding the disease are yet unsettled and the study of these should go hand in hand with the work of relief and control. The city or county might properly finance such work. The Bender Laboratory is one of the leading scientific laboratories in the country and affiliation with it would at once place the hospital in a position of advantage possessed by few hospitals in the country. The hospital of the Phipps Institute in Philadelphia is one of these.

The erection of tuberculosis hospitals in connection with general hospitals is advocated by many leading authorities among them Dr. H. M. Biggs of the New York City Department of Health.

The Imperial Council of Health in Germany recommended this as the preferred plan to the various local authorities in 1904. (*Zeitschrift für Tuberkulose,* 1908, xiii, 382.)

In Albany the location of the general hospital is almost ideal for such a purpose; moderate elevation, pure air, beautiful views, well kept grounds present advantages not to be obtained elsewhere. Several sites are available. There is perhaps not as much land as might be utilized in a sanitarium for incipient or quiescent cases but ample for the needs of a hospital for sick patients. Temporary camps and shacks for the quiescent cases could be provided on land owned by the county or the hospital could closely co-operate with a sanitarium for early cases elsewhere in the county. All classes of cases should be provided for but the most urgent need is provision for advanced and acute cases. All the money available for the fight against tuberculosis in Albany should not be expended in erecting and equipping an expensive sanitarium for the class of cases least a menace to the community, to the exclusion of proper support for the care of advanced cases and the home work. The dispensary and home care of tuberculous patients will always be an important part of the work and should be properly maintained. In accordance with resolutions adopted at the International Congress provision should be made first for hospitals for advanced cases, *second* for sanitaria for curable cases and third for dispensaries and camps. All the money available should not be spent lavishly for one of these objects to the exclusion of the others. Economy may be promoted in many ways by conducting the hospital for advanced cases in connection with the Albany Hospital. There are also reasons for thinking such an institution would be more efficient

than a new institution entirely unconnected with any previously well established hospital and that the ultimate benefit to the public would be greater.

Each community has, however, its own local conditions and problems. The association of a tuberculosis hospital with a general hospital has not always proved a wise measure. It has nevertheless manifest advantages and circumstances in Albany seem especially favorable to its success. The hospital plan should not be abandoned without due consideration.

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## THE FIELD OF THE ALBANY RED CROSS IN THE FIGHT AGAINST TUBERCULOSIS.

By HOWARD VAN RENSSELAER, Ph. B., M. D.,

*Professor of Materia Medica and Therapeutics in the Albany Medical College.*

During the year 1908, the records show that there died from consumption in the county of Albany, three hundred and thirty persons. These records are probably incomplete, the number of deaths being higher. In other words one person dies from consumption nearly every day in the year. Of this number the city of Albany contributed two hundred and forty deaths, i. e., twenty each month.

As this death rate goes on year after year, it means also that one seemingly healthly person contracts this disease, and is doomed to die practically every day of every year.

If the average life of a tuberculous individual is three years, there are one thousand consumptives in this county, each one capable of spreading the disease to many others.

To attempt to check this terrible waste of life, with its untold miseries, and great economic and monetary loss; to cure the curable cases; and to endeavor to prevent consumptive persons from spreading the contagion to healthy individuals, The Albany Red Cross Sanatorium and Camp has been organized.

It enters a field that is practically unoccupied. None of the large hospitals takes consumptives. Neither city nor county has made any provisions for this class of patients, except for a very few advanced cases in the Almshouse Hospital.

A special committee of the Board of Supervisors of Albany

county has been studying the question for over a year. With a full comprehension of the difficulties of the modern treatment of consumption, they have decided not to take the important step of buying land and equipping and running a hospital at this time. They have agreed, however, to send both city and county patients to the Red Cross Sanatorium and Camp as soon as it is open, at the rate of seven dollars a week for each patient. This is as far as they care to go at present.

The following is a brief outline of those features of the modern scientific treatment of consumption, which differ from ordinary hospital practice, and which cannot be carried out in a city institution.

I shall not mention the medicinal treatment of this disease; omitting also the newest applications of tuberculins and vaccines as determined and controlled by the opsonic index; nor even the modern dietetic treatment, with its exact scientific determination of calories, etc., as these advances on older therapeusis might be carried out in any modern hospital with a good laboratory; but will confine myself to a consideration of those therapeutic agents which require a special institution with spacious grounds.

In the modern treatment of consumption, the scientifically conducted outdoor life is now recognized to be the most important therapeutic measure.

With this idea in view the Red Cross Sanatorium site has been selected, after nearly a year of seeking about Albany, as the best that could be obtained.

It is a tract of eighty acres, about as large as Washington Park, lying partly within and partly without the city limits, in a section of the city where it is surrounded by farms, with no built up streets in the neighborhood. Thus insuring the maximum amount of pure air, quiet and freedom from street dust. It is readily accessible, the walking distance from the trolley being but a few minutes farther than the Albany Hospital is from the trolley, and the trolley ride but fourteen minutes beyond New Scotland avenue. The land is the most elevated in Albany, with a very extended view in every direction.

The tract is rolling and the soil pure sand, thus ensuring good drainage, quick drying after rain and a dry lower stratum of air.

Two thousand pine trees have been purchased from the State and have just been set out. On subsequent years as large a part

of the estate as may be desired may be covered with a pine grove.

The site, soil and situation of the property afford better opportunity for carrying out systematically the various phases of the outdoor treatment, than any other institution in the neighborhood of Albany.

Three stages of the disease require different outdoor treatment:

First, the quiescent stage, those without fever, i. e., the incipient and convalescent patients. These should be provided with gentle, interesting outdoor exercises, such as walking, croquet, lawn bowls, clock golf, light gardening, and other mild outdoor amusements and work. There are two other therapeutic reasons for these amusements and work which will be referred to later.

Paths of any desired grade and length, even to several miles can be laid out on the property, with benches at appropriate intervals, following out the example and carrying out the treatment that has been so successful in Europe, especially at Goerbersdorf, Neuheim and Carlsbad.

This property is so secluded that the patients, while taking their outdoor treatment, would not be subjected to the prying, curious gaze and remarks of persons on a public avenue close by. There is but one approach to the property which could be easily controlled, so that curious outsiders could be excluded, and also the friends of patients prevented from bringing in undesirable food and liquor.

No present hospital in Albany has land sufficient to carry out this, the most important treatment of consumption, nor could it properly police its grounds, nor give its outdoor patients privacy.

During wet weather, in our scheme, there are three hundred feet of continuous covered piazza for exercises, walking or lounging.

The second class of patients, those with some fever, could lie on steamer chairs on the terrace in front of the building, or in beds on the long veranda, either in the sun or under shade as desired, with the always cheerful unobstructed view in front of them.

The third class of patients, those in the advanced stages, have their own public wards, semi-private wards and private rooms, and two large piazzas on a separate upper floor, which practically isolates them from the other patients; and their beds can be rolled out on these piazzas which command opposite views.

The second treatment in importance is psychotherapy.

The prevailing custom in hospitals of permitting patients to assemble in the wards or in a solarium, without any systematic attempt at amusements, and allowing them to describe at length their own ailments and symptoms, and in listening to those of their neighbors, is a most depressing and pernicious one. We believe that the most earnest persistent efforts should be made to keep the thoughts of the patients off themselves, by trying to prevent them seeing or hearing anything of a depressing nature, and by endeavoring as much as possible to divert them towards cheerful thoughts, occupations and amusements.

The site of the hospital and the construction of the building have been planned with this object in view. In the designing of the sanatorium both exteriorly and on the interior, we have tried to get away as much as possible from the hospital idea, and have endeavored to make it resemble a hotel, or better perhaps a club, and to make it also, homelike, cheerful, bright and attractive.

A large part of the first floor is devoted to indoor amusements and recreation. There is a large combined reading, writing-room and library; which is also capable of holding all the patients for general assembly purposes; such as lectures. musicals, and other entertainments. A billiard room, two box bowling alleys, and game rooms are also provided. The patients thus having the freedom of a large part of the building and not being confined to their individual wards.

The necessary outdoor amusements have been referred to, as have also the quiet, seclusion and prevention of outside annoyances. At the same time the sanatorium is so accessible that the patients may have the diversions of easily seeing their relatives and friends.

By these means we hope to lessen the monotonous depressing conditions common to most hospitals, and thus prevent morbid thoughts and conversations, and to direct, stimulate and turn their thoughts to healthy hopeful aspects.

The tremendous influence that the mental attitude of the patients has towards his illness, in hastening the cure on the one hand, or increasing his invalidism on the other, is well known to physicians, and is mentioned here only to show that we are alive to the importance of psychotherapy.

A third method of treatment which is perhaps the newest of all,

is applicable to curable cases only. It involves also the socialistic relationship between the institution and the body politic.

A curable case as the name indicates shows that the disease may be arrested or cured, and the patient returned to the community.

Until very recently and still in most consumptive hospitals the patient is discharged with the disease arrested to be sure, but with weakened muscles and with a habit of mind unconsciously trained by many months in the hospital, towards invalidism and laziness, and a state of dependence upon others, which is likely to make him if poor, dependent upon the community, and hinders him from becoming self-supporting for months or even always.

A system of graduated outdoor labor for convalescents has therefore been devised which is an important part of the modern treatment of consumption, the details of which are too long to be given here. This system of graduated labor has been very successfully worked out in the Frimley sanatorium and the Brompton Hospital in England, and in Germany as well.

The patients can readily be made to understand that this treatment is for their good. It gives both mind and body diversion and exercise, it improves the general health, it hardens the muscles, it removes the tendency towards invalidism, it excites ambitions, it restores confidence, and proves to them that they are being restored to health, and that they will be able to resume their ordinary avocations, and thus returns them to the community, mens sana in sano corpore.

In our own sanatorium the fresh vegetables obtained as the result of the patients gardening might reduce the food expense somewhat; and a large hennery would solve the problems of fresh eggs.

Day camps and night camps have been provided for in connection with the sanatorium for those patients who are unable to spend their entire time at the institution; that there they may get the benefit of the dietetic and medicinal treatment, as well as the quiet outdoor life, and thus free from the carking cares of domestic life, and from the noise, crowds and confusion and bad air of tenements, they quietly and without interference, under the best conditions possible, may make their fight for life and health and happiness.

While the idea is comparatively new, these camps have been successful in every instance, and new ones are planned in many

states. They are of great educational and practical benefit for the class of cases for which they are intended.

No hospital in Albany has facilities for caring for such patients.

Still another plan which the Board of Directors has in mind, is the establishment of a tent or cottage colony on its premises, and under its control for those consumptives who do not wish to be separated from their families, and who would be able to pay a small rent for the tent cottages or shacks. There they would have the comforts and enjoyments of home, and at the same time, the benefits of treatment in a well equipped sanatorium. Again, no Albany hospital could take such patients.

The city should establish a school for children predisposed to this disease or actually suffering from tuberculosis. Quite recently Drs. Shaw and Laird made tuberculin tests on three hundred and thirty children in the various orphan asylums in this city, with the following results. Of the children under two years old, two and one-half per cent. reacted positively; between two and three years, seven per cent.; between three and four years, fourteen per cent.; between four and five, twenty-five per cent.; over six and under twelve years, forty-five per cent.; the average of all the children being twenty-eight per cent.

It will be noticed that the percentage of infected children increased directly and rapidly with the age and undoubtedly with their stay in the asylum. The children in the public schools have not been tested. They would probably show a percentage somewhat lower, but undoubtedly there would be enough of them, who have latent tuberculosis to fill a good sized school by themselves. The children who react to this test should certainly be isolated from healthy children, and if they were put under proper medical control, could be made at the same time, healthy citizens.

The Red Cross Sanatorium would gladly place at the city's disposal for this purpose, space for the building and land sufficient for the necessary large playgrounds, at a place on the opposite side of some of our hills, where the children could be unseen and unheard by the patients in the sanatorium and camp.

The land at our disposal is sufficiently large to enable us to offer portions of it to any society which has for its object the prevention and cure of consumption.

No provision has been made in the plan of the sanatorium for an operating room. A prominent surgeon in Albany has told me

that he thought it would be more convenient and satisfactory to have surgeons perform their operations on tuberculous lesions at their own hospitals, but that when the operations were over, as soon as possible afterwards, the patients should be sent to the sanatorium to convalesce. He said that he would be glad to send his patients there both public and private. Other surgeons would probably do likewise. Such patients whether public or private would continue under the care of the operating surgeon.

Physicians could also have the right to treat if they so desired, any private pay medical cases that they chose to send to the sanatorium, or to the tent colony.

Nurses could be sent from the various training schools from the different hospitals to get experience in special nursing for consumptives.

Medical students would have the same privileges and opportunities for study which they now enjoy in the other hospitals.

This sanatorium would be for a time, the only one in the state treating tuberculosis in all its stages, which would redound to Albany's credit, and should also draw persons not only from all over the state, but from the neighboring states as well, thus giving an increased income.

There is little likelihood of patients coming from the outside if the building should be a ward or pavilion of a general hospital.

Should this sanatorium under efficient management, be successful in its cures, it would rapidly grow and our tract of land, being so large, it would permit of indefinite expansion, which is not true of any other hospital in Albany.

In regard to raising money for the sanatorium, while it may be the duty of the city or county to provide all the money and run such an institution under official management, yet there is little likelihood of their taking such an important step now, and the most that can be expected is a substantial subscription towards the erection of the building.

Should they do so we believe that the Board of Supervisors and the city officials should have some of their members as representatives on the Board of Governors of such an institution. If the general hospitals such as the Albany, St. Peter's and Homeopathic should put in claims for such aid, the choice of the best one might be embarrassing. The Board of Supervisors might readily refuse aid for a tuberculosis ward in any general hospital, and yet give it to the one erected for the special purpose.

Should the appeal for funds be made to the general public as it certainly must be, if the Albany Hospital for example should be the claimant, it would be very difficult to persuade the adherents of the Homeopathic, St. Peter's and the Child's hospitals to contribute to a competing institution. Yet they could all give to a sanatorium that is not a rival in any field of work that they are interested in. Thus subscriptions could be obtained from a wider circle of people.

In addition to the above reasons, it seems to us that there are two other important reasons why the Board of Supervisors should combine with the Red Cross in the erection and maintenance of a tuberculosis hospital, rather than that they should run it alone.

First. Should the board of Supervisors build and operate the hospital themselves, the institution becomes, according to law, an almshouse.

The objections to making a tuberculosis hospital an almshouse are too grave to make this plan feasible. By combining with the Red Cross these objections can be done away with.

Second. The expense and erection and maintenance of the hospital. Recent writers on hospital construction seem agreed that it is impractical to construct, even in the most simple way, a hospital under $1,000 a bed, and that exclusive of the land; though one writer believes that by using the simplest shack construction it could be done for $800 a bed.

In our city the new Homeopathic Hospital with 87 beds will cost when completed over $200,000, i. e., over $2,000 a bed. The cost per bed at the Albany Hospital is probably as much, and St. Peter's with 80 beds cost over $150,000, i. e., $1,875 per bed.

Ray Brook built especially for tuberculosis has 150 beds and cost $250,000, i. e., $1,667 per bed.

A properly equipped hospital built by the county would cost probably not much under these figures.

In regard to the running expense. For the past year it has cost Ray Brook, built exclusively for consumptives, nearly $10 per week for each patient, or to be accurate, $9.74 a week. The Albany hospitals probably cost as much.

The Albany Red Cross will take the county patients at seven dollars per week, not including transportation or extra winter clothing.

Thus by combining with the Red Cross the Supervisors of

Albany County could erect a building, and maintain a larger number of patients for any given sum than they could do alone.

Next as to the amount of appropriation needed. At least $50,000 should be given at once. Albany has the unenviable distinction of having, next to Troy, the largest death rate from consumption of any city in the state. The smaller the appropriation made the less work can be accomplished in stamping out this plague and the less influence on mortality from this cause. If $50,000 were given the death rate should steadily diminish year after year.

Albany County cannot lead in this matter of appropriation. It is really somewhat behind as already Oneida, Rensselaer, Chemung and Ontario counties in this state have made such appropriation. Our neighboring county, Rensselaer, has appropriated $45,000 for this purpose. That county should not have the opportunity to brag that she has given more than her wealthier sister, the county of Albany, which contains the capital city of the State of New York.

The following statistics show the great need for an institution treating consumptive persons. During the past twelve months the Albany Bureau of Health has collected the names and addresses of 422 of our citizens suffering from this disease, i. e., an average of thirty-five new cases a month. During February, March and April of this year, 132 cases were reported; an average of forty-four new cases a month. These 442 cases do not include the 100 children examined by Drs. Shaw and Laird. There are undoubtedly many more persons suffering from tuberculosis who have not been reported.

The Keynote of the Red Cross is Service. As the need for immediate action and relief is evident, we believe that we can serve more efficiently, and that quicker results can be obtained by our co-operating with existing institutions, than if we tried to carry on our many plans alone. With this object before us we think that the Commissioner of Charities, and the Health Officer of Albany, and two members of the Board of Supervisors, should be ex-officio on our Board, and that each of the existing large hospitals should have at least one member of their Board of Governors on our Board. So that our sanatorium might be considered to be an annex or complement of each of these hospitals.

In conclusion we would say that the modern treatment of consumption is so difficult to carry out, and so different from

ordinary hospital practice, that the trend of modern medical thought is overwhelmingly in favor of a special institution for the treatment of these cases, rather than that it should be conducted as a pavilion of a general hospital.

Our own sanatorium should be constructed at once; the need for it is urgent, and it should command universal support, as it is not the rival of any existing hospital but supplements the work of all.

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# A REVIEW OF RECENT WORK ON THE PANCREAS.

*Read before the Bender Laboratory Review Club of Albany, March 13, 1909.*

By WILDER TILESTON, M. D.,

*Boston.*

Pawlow[1] showed that pancreatic secretion was stimulated by the acid of the gastric juice on its entrance into the duodenum. The researches of Bayliss and Starling, however, proved that this stimulation was not reflex, as the Russian experimenter had supposed, but was due to the formation of a substance known as secretin. This substance exists in the duodenal mucous membrane in the form of prosecretin, which by the action of HCl or other acids is converted into secretin. The secretin is then absorbed and carried with the blood current to the pancreas, where it excites an active secretion of pancreatic juice. The discovery of secretin marked a great advance in the physiology of the pancreas, for by means of the subcutaneous injection of this substance, the pancreatic secretion can be excited at will.

Besides the action of secretin, however, the pancreas can be excited in other ways. There is a free flow of pancreatic secretion when food is chewed, or even shown to a dog with a pancreatic fistula, similar to what is seen in the case of gastric secretion. This was clearly demonstrated by the Pawlow school by the method of "sham feeding." Esophagotomy is performed in the neck, and a pancreatic fistula is made. The food is taken eagerly by the dog, and chewed, and swallowed, dropping out below through the hole in the esophagus. In this way

[1] The Work of the Digestive Glands, Translated by W.H.Thompson, London, 1902.

the so-called appetite or psychic juice is produced, without any possible action of the food itself on the stomach. Now the latent period which elapses between the beginning of feeding and the flow of gastric juice is regularly about five minutes, never falling below four and one-half minutes. In the case of the pancreas, however, the juice begins to appear in two or three minutes, that is to say, before there can possibly be any secretion in the stomach. Since the latter organ is washed clean with water before the experiment, it is impossible that the acid of the gastric secretion should have indirectly stimulated this flow of pancreatic juice.

Still another excitant of the pancreas is fat, which apparently acts in a reflex manner by specific stimulation of the duodenal mucous membrane. Since, however, fat depresses the secretion of HCl in the stomach, and therefore the formation of secretin, the total amount of pancreatic juice, in spite of this excitant effect, is less with fat than with other forms of food.

The gland may also be affected by drugs subcutaneously administered, pilocarpin stimulating the secretion and atropine paralyzing it. This action is through the vagus nerve.

The external secretion of the pancreas constitutes by far the most important of the digestive juices, and contains, as is well known, all three of the important digestive ferments, the tryptic, the fat-splitting, and the amylolytic. Pawlow and his pupils demonstrated for the first time that the amount of the pancreatic juice, and the content in ferments, as shown by the digestive power, is adapted in a remarkable degree to the kind of food that is taken. Thus, fats call forth a juice that is particularly rich in the fat-splitting ferment, while after a meal of bread the secretion is rich in the amylolytic ferment or diastase, and the fat-splitting ferment is decreased.

As regards the total amount of secretion, a meal of carbohydrates (bread) produced the greatest amount of juice, while the equivalent amount of milk produced the least, meat occupying an intermediate position. The large amount of juice secreted on a bread diet is due to the ample secretion of HCl by the stomach, which in turn stimulates the duodenal mucous membrane and causes a large amount of secretin to be passed into the circulating blood.

These different effects of various sorts of food have recently been taken advantage of with brilliant success in the treatment

of pancreatic fistula. Wohlgemuth[2] in 1907 investigated the effect of diet on a patient with a persistent pancreatic fistula, and found that it had the same effect as in Pawlow's experiments on dogs. When the food consisted largely of carbohydrates, there was a profuse discharge from the fistula, which became much less on a diet of proteids, and ceased altogether when fat alone was given. Hydrochloric acid greatly increased, and bicarbonate of soda diminished the secretion. This suggested the treatment by a strict anti-diabetic diet of fat and proteid with sodium bicarbonate, with the result that the fistula closed within a short time. Four other cases have since been published, all with the same striking results; the fistula which had remained open for from several months to nearly two years closed within a short time, in one case in three days. Three cases followed traumatic rupture of the pancreas, one the removal of a tumor, and one acute hemorrhagic pancreatitis. In one instance the fistula broke open again immediately, because the patient insisted on taking carbohydrates, but closed again in two weeks of anti-diabetic diet. This diet, according to Wohlgemuth, should be kept up for 3 or 4 days after the fistula heals, and then a gradual transition should be made to a mixed diet. The bicarbonate of soda is given, a teaspoonful before and a teaspoonful after each meal, and is also continued until the liberal diet is reached. If the fistula does not close in 6 weeks, he says that the case is not one of simple pancreatic fistula.

It is therefore in our power to increase or diminish the pancreatic secretion at will, a fact which may be important in other diseases of the pancreas besides fistula. For instance, in acute hemorrhagic pancreatitis, it would be very desirable to decrease the secretion, as the necrosis of the pancreas is probably, and the fat necrosis certainly, due to the action of the pancreatic juice, which in turn produces toxic substances from the necrotic tissue (soaps, amino-acids), which are supposed to be the cause of the fatal collapse. Again, in case the gastric juice is deficient, it might be possible to stimulate the pancreas to increased activity by the use of a carbohydrate diet and the administration of hydrochloric acid.

After this digression, let us return to the physiology of the pancreas. The study by the Pawlow school of the relations of

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[2] Berl. klin. Woch., 1908. Vol. 45, p 389.

the bile and the succus entericus to pancreatic digestion brought out still further the wonderful working together of the digestive apparatus. The bile is poured into the intestine only during the period of pancreatic activity, and curves of its secretion into the intestine correspond very closely in character to the pancreatic curves. Bile was found to intensify the action of all the pancreatic ferments, but especially that of steapsin, the fat-splitting ferment. The succus entericus proved also of great importance in relation to the digestion of proteids, containing a ferment, enterokinase, which has little direct action on food, but serves to activate the trypsinogen of the pancreatic juice. The latter secretion was found sometimes to contain the proteolytic ferment in an inactive form, as trypsinogen, and this on the addition of enterokinase became converted to trypsin. Sometimes, however, in dogs at least, the pancreas furnishes trypsin in active form, and here the succus entericus would appear superfluous. This is one of the many instances in which nature has furnished a superabundance of power to the organism.

The intimate adaptation of the work of the pancreas, however, to that of the other digestive organs, by no means completes the relations of this wonderful gland. The discovery by Schaeffer of adrenalin, the active principle of the adrenal gland, opened up the path for further illuminating researches. Blum found that the subcutaneous injection of adrenalin produces glycosuria, with an excess of glucose in the blood. The work of Loewi makes it probable that adrenalin governs the mobilization of carbohydrates from the liver and muscles. The mode of production of this adrenalin diabetes, and the correlation of three of the important glands with internal secretion, the pancreas, the thyroid, and the adrenal, were studied by Eppinger, Falta, and Rudinger. By a series of experiments ingeniously planned and carried out, they brought out many new facts, and drew up a very plausible working theory, which is briefly as follows:[3] The pancreas and the adrenal and the pancreas and the thyroid, have a strong inhibiting action upon one another, while the adrenal and the thyroid have a distinct, though less marked, reciprocal stimulating action. The removal of any one of these organs will have two effects; the first, a direct one, due to the loss of the internal secretion, the second, indirect, due to the

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*Zeitschr. f. Klin. Med.*, Bd. 66, Hft. 1 and 2, p. 1.

loss of its action upon the other two glands. Thus thyroidectomy will produce directly a diminution of the proteid and salt metabolism, and indirectly an increased activity of the pancreas, due to the lack of inhibition on that organ, and a lessened function of the adrenal, by reason of the loss of the stimulating effect in that direction. And this theory fits in with the experimental facts, for they found that in the thyroidectomized dog the injection of adrenalin never produced glycosuria, as it does in the normal animal. For the increased mobilization of carbohydrates caused by adrenalin was counteracted by the over-function of the pancreas, the sugar was consumed and did not appear in the urine.

Extirpation of the pancreas, according to this theory, causes glycosuria as a direct result of the loss of the internal secretion, and this is increased by the lack of inhibition of the pancreas on the adrenal, allowing over-function of this gland and thus increased mobilization of carbohydrates. The lack of inhibition of the thyroid leads to over-function there, and this explains the increased proteid destruction observed after pancreatectomy. By extirpating the thyroid before removing the pancreas they were able to decrease the loss of nitrogen in the urine to less than one-half what it is after simple pancreatectomy.

These observers also studied the relation of the vagus nerve to the internal secretion of the pancreas. It had been shown previously that poisons which paralyze the vagus have a stimulating effect on the sympathetic, and *vice versa.* The injection of pilocarpine, a stimulant to the vagus, prevented the occurrence of glycosuria after adrenalin injections; that is to say, it increased the internal secretion of the pancreas, so that the carbohydrate mobilized by adrenalin was completely consumed. On the other hand, if atropine were administered to dogs whose thyroid had been removed, glycosuria took place after the injection of adrenalin, although this never was the case if adrenalin alone were injected to thyroidectomized dogs. That is to say, the paralysis of the vagus caused by atropine decreased the internal secretion of the pancreas, so that glycosuria could be produced by adrenalin. These experiments render it probable that the internal, as well as the external secretion of the pancreas, is under the control of the vagus. For had it been under the influence of the sympathetic system, exactly the opposite should have happened. Zuelzer[4]

[4] *Berl. Klin. Woch.*, Bd. 44, p. 474, 1907.

found that adrenalin glycosuria could be prevented, if pancreatic extract were injected simultaneously with the adrenalin. To explain this, he assumes that normally adrenalin is neutralized by pancreatic ferments, probably in the liver, but that in true or pancreatic diabetes of man, the internal secretion of the pancreas being lacking, the adrenal secretion is left unneutralized, and produces glycosuria.

Pemberton and Sweet[5] of Philadelphia, have recently shown another interesting relation of the adrenal to the pancreas. They found that if adrenalin and secretin are injected simultaneously, the increased flow of external pancreatic secretion which follows the injection of secretin alone does not occur. And if secretin is injected previously and the secretion of pancreatic juice started in this way, the injection of adrenalin will completely stop the flow. This inhibition was shown to have no connection with the rise of blood pressure caused by adrenalin.

Extracts from the nervous portion of the pituitary gland produced identical effects, but even more marked. The extract of the epithelial portion of the gland, however, was without effect, either on pancreatic secretion or on the blood pressure. Extracts of various other organs were without inhibiting effect.

The mode of action of adrenalin in this case still remains to be discovered. It is possible that it is due to stimulation of inhibitory sympathetic fibres passing to the pancreas, for adrenalin has been shown to act exclusively on the sympathetic system.

The relation of the pancreas to diabetes is still open to discussion. There can be no doubt that lesions of the pancreas can cause diabetes, and that this is due to lack of the internal secretion. And the relation of the islands of Langerhans to diabetes, after the work of Opie, may be taken as certain. He found, it will be remembered, in some cases of diabetes hyaline degeneration affecting only the islands, leaving the acini of the pancreas intact. And his cases of chronic pancreatitis in which diabetes occurred were all of the interacinar type, with involvement of the islands in the process. The latest statistics, those of Opie in Osler's "Modern Medicine," show some diseased condition of the pancreas in 88 per cent. of 288 cases. In some of the remaining cases, it is likely that functional insufficiency or a congenital deficiency in the number of the islands of Langer-

[5] *Arch. of Int. Med.*, Vol. I, No. 6, p. 628, 1908.

hans may account for the disease. I have seen a child with typical diabetes, in whose pancreas no islands whatever could be found, though all parts of the gland were examined. There was otherwise nothing remarkable about the organ. Over-function of the thyroid gland is responsible for the glycosuria sometimes met with in Graves' disease, and the work of Eppinger, Falta, and Rudinger, and other recent observers, suggests that hypersecretion on the part of the adrenal might be a possible cause. As yet, however, there is no good clinical evidence in favor of such a mode of production of diabetes in man.

The effect of exclusion of pancreatic juice from the intestinal canal has been much studied of late, and with varying results. The question is an important one, both from the practical and the theoretical point of view. More than fifty years ago, Claude Bernard, after destroying the pancreas by injections of oil, found that the stools contained large masses of neutral fat and of undigested meat. Abelmann, working under Minkowski's direction, found a similar disturbance of fat and proteid digestion after total extirpation of the pancreas, and made accurate absorption experiments. Fifty-six per cent. of the nitrogen of the food was recovered from the feces; by feeding fresh pancreas of the pig, this loss of nitrogen was reduced to 24 per cent.; the normal amount of nitrogen in the stool for a dog is 2 per cent. of the amount in the food. Non-emulsified fats were not absorbed at all, emulsified fats, i. e., milk, only to the extent of 30 per cent. The normal absorption of fat is about 95 per cent. The amount of split fat, was inconstant, varying from 30 to 85 per cent. of the fecal fat. Partial extirpation of the pancreas produced a slighter disturbance of absorption.

These experiments seemed quite conclusive, and the results were only what one would expect from what we know of the relatively insignificant digestive power of the bile and succus entericus when not mixed with pancreatic juice. Later workers, however, attempted to study the question by ligating the pancreatic ducts and observing the effect of this procedure upon absorption. And here difficulties at once arose, for the pancreatic ducts in the dog may number as many as four, and it is therefore very difficult to make sure that all are ligated. And even if this is successfully performed, a fistulous tract may form between the pancreas and the intestine, permitting the escape of pancreatic fluid. We know, however, that a very small amount of ferment

is capable of doing a great amount of work. These circumstances may account for the great discrepancies which have occurred in the results after experimental ligation of the pancreatic ducts. Some observers have found practically no disturbance of fat and proteid absorption, but their experiments do not prove conclusively that no pancreatic juice entered the intestine. Very recently Niemann, working under the direction of Brugsch, found normal fat and proteid digestion after ligation of the ducts in two dogs, and claims to have proved the absence of pancreatic secretion into the intestine, because on killing the dogs after a full meal during the height of digestion, no trypsin could be demonstrated in the duodenal contents. This seems at first sight conclusive, but he does not mention any control experiments on normal dogs, and it is very possible that a small amount of trypsin might escape detection. Moreover, he ligated only two ducts.

In a question like the present one, positive evidence is of vastly greater value than negative, and such has been at length supplied. Hess[6] of Marburg, after a very careful anatomical study of the pancreatic ducts in a dog, found that there are always two, usually three and sometimes four. Ligation of *two* ducts never caused marked disturbance of fat or proteid absorption, while at the autopsy there was always some normal pancreatic tissue remaining. The parts of the gland corresponding to the ligated ducts showed always the appearances of chronic interstitial pancreatitis, with great increase of the connective tissue. In four dogs he ligated *three* of the ducts; two of the animals died soon after the operation, a third showed normal absorption, the last, however, absorbed only 4.7 per cent. of the fat ingested, and 55 per cent. of the nitrogen. The autopsy showed total sclerosis of the pancreas.

J. H. Pratt[7] of Boston, has very recently performed experiments which fully confirm the work of Hess. By a special method devised by F. T. Murphy, the entrance of pancreatic juice into the intestine is entirely prevented; the head of the pancreas is separated from the duodenum, all structures passing between the two, excepting the pancreatico-duodenal artery and vein, are severed, and the omentum is placed between the pancreas and the duodenum. The omentum becomes adherent, and forms an effectual barrier against the passage of pancreatic juice into

[6] *Medizinisch-Naturwissenschaftliches Arch.*, Bd. 1, p. 161.

[7] Personal Communication.

the gut. The necessity for such precautions is shown by the fact that in one of Pratt's earlier experiments, in which the omentum was not interposed, the fat absorption was normal. At autopsy, however, it was found that one of the ligatures had sloughed, and a fistulous tract connected the pancreas with the duodenum.

Out of Pratt's four dogs operated on by Murphy with this method, all showed a tremendous interference with absorption. About 80 per cent. of the fat ingested was recovered in the stools; the fat-splitting, however, was normal and the amount of soap showed no constant changes. Fifty per cent. of the nitrogen was not absorbed. There was some macroscopic fat in the feces, and microscopical examination showed countless muscle fibres. A very interesting feature was the enormous bulk of the stools, amounting to many times the normal weight. The autopsies showed extensive chronic interstitial pancreatitis of the interlobular type, with dilatation of the ducts, but no islands of Langerhans could be found.

Glycosuria of a transient character and small in amount developed in three out of the four, but true diabetes was absent.

Burkhardt[8] has attempted to demonstrate the possibility of absorption of the external secretion of the pancreas by the blood or lymph vessels and its passage into the intestine. He used a dog which had had the following operations performed by Minkowski; a portion of the pancreas had been transplanted, together with its vessels, into the skin incision, in such a way that a fistula was formed, which opened externally. The remaining portion of the pancreas was completely extirpated at a later operation. Burkhardt found that if the dog were allowed to lick the fistula, the fat and proteid absorption were comparatively little below the normal; if, however, the dog was prevented from licking and the secretion from the fistula was collected and removed, the fat absorption fell to 13 per cent. and the nitrogenous to 46 per cent. The normal figures for the dog are 96 per cent. and 98 per cent., respectively. Finally the fistula was tightly closed with a compression bandage, so that the juice was dammed up within the gland, and the absorption was found to be considerably higher than if the juice were allowed to escape, but licking was prevented; the figures were 68 per cent. for fat and 62 per cent. for proteid.

[8] *Arch. f. Exp. Path. u. Pharm.*, Bd. 58, Hft. 3 and 4, p. 25.

The experiments of Burkhardt may be criticized on the ground that they were performed on only one dog, were few in number, and over too short periods of time. Fleckseder[9] points out these objections, and repeating Burkhardt's work with a somewhat different operative technic, found that the food absorption was the same whether the secretion from the fistula was entirely lost, dammed up, or regained by licking. In one of his dogs with severe diabetes, the fat and nitrogen absorption were normal, although at the autopsy no functionating pancreatic tissue could be found. He comes to the conclusion that an internal secretion of the pancreas is capable of influencing the absorption by the intestinal mucous membrane, and that under certain circumstances, the intestine may regain the power of absorption in the absence of all pancreatic secretion, both internal and external.

The clinical results of the closure of the pancreatic duct in man have been studied by numerous observers, and as might be expected from the experimental work, with very varying results. For the duct of Santorini, which according to Opie is always present and usually patent, may afford an outlet for the pancreatic juice if the duct of Wirsung is blocked. Friedrich Müller, twenty years ago, was the first to make exact determinations of the fecal fat and nitrogen in such cases, but he confined his analyses to the stools, and therefore did not measure the actual absorption. He came to the conclusion that the absorption of fat was not hindered, but that the splitting of fat was decreased. The fatty stools in some cases of pancreatic disease he attributed to the coincident closure of the common bile duct, for he had previously shown that the exclusion of bile from the intestine interferes to a high degree with fat absorption. Evidently he had to deal with incomplete closure of the duct, or closure of one duct only, for several later observers have found the contrary to be the case. Deucher, in two cases of cancer of the head of the pancreas with obstruction of the pancreatic ducts but without jaundice, found normal fat-splitting, but a grave defect in the absorption of fat, which was diminished to 17 and 47 per cent. of the intake respectively. In healthy persons 90 per cent. or more of the fat in the food is absorbed.

An important contribution to this subject was made by Brugsch[10] in 1905. In four cases of obstruction of the pancreatic

[9] *Arch. f. Exp. Path. u. Pharm.*, Bd., 59, Hft. 6, p. 407.
[10] *Zeitschr. f. Klin. Med.*, Bd. 58, p. 518.

ducts proved by autopsy, he found in cases without icterus the loss of fat in the stools to amount to 65 per cent. of the intake; with moderate jaundice the average rose to 72 per cent., and with complete obstruction of the bile duct to 87 per cent. He found icterus without obstruction of the pancreatic duct to be accompanied by a loss of fat averaging 45 per cent., and drew the conclusion that if jaundice is present and the fat loss is below 60 per cent., pancreatic obstruction may be excluded, and that on the other hand, if the loss is above 60 per cent., pancreatic disease must be considered.

With regard to the splitting of fat, Brugsch found in every case normal figures, and says that the amount of split fat is of no value in the diagnosis of pancreatic disease. The amount of soaps was found usually diminished in proportion to the fatty acids, but this occurred also in simple icterus and in other diseases, and is therefore of little practical importance.

The loss of nitrogen in the feces was considerably above the normal, 21 per cent. without and 34 per cent. with icterus. Intestinal diseases, however, have shown as high figures, so that the disturbance of proteid absorption is not so important in diagnosis as that of the fats.

The analysis of single specimens of feces did not give a reliable idea of the fat absorption, for which the total intake and outgo must be estimated. For instance, in catarrhal jaundice the percentage of fat in the stools reached 85 per cent., that is to say the stools consisted almost entirely of fat, while in obstruction of the pancreatic duct, on account of the large amount of nitrogen present, the percentage of fat was much less than in simple icterus, averaging 60 per cent.

The absorption of carbohydrates was not interfered with to an appreciable extent, the saliva and other secretions supplying the necessary diastatic ferment.

The value of exact absorption experiments was very prettily shown by one of the cases of Brugsch, in which an abscess of the pancreas was diagnosticated entirely by this method, the abscess opened and drained, and the patient cured.

Robson and Cammidge have reported a large series of analyses of the stools for fat in pancreatic disease, and in icterus due to obstruction of the common bile duct, but their results are of little value, because they used an inaccurate method to determine the fat, and did not determine the actual fat absorption, but only the percentage in single specimens of feces.

## The Functional Diagnosis of Pancreatic Disease

The most exact method of diagnosis of obstruction of the common duct consists in the quantitative determination of the fat and proteid absorption. The diagnostic rules have already been stated in the account of the work of Brugsch. It must be borne in mind, however, that intestinal diseases, particularly enteritis and tuberculous peritonitis, and even increased intestinal peristalsis without organic disease, may cause a marked deficiency in fat absorption. These can be excluded, however, by the examination of the stools, which in pancreatic disease are not watery, but fairly firm. Furthermore, a large excess of fat in the diet will result even in healthy persons in a deficient absorption. Edsall has drawn attention to a class of individuals without other evidences of pancreatic disease, in whom the fat absorption is deficient if a certain moderate amount in the food is exceeded.

The quantitative determination of absorption is fortunately necessary only in the cases of partial obstruction of the ducts. Complete exclusion of pancreatic juice from the intestine can be detected without these time-consuming procedures. In six such cases (five of cancer of the head of the pancreas, one of chronic pancreatitis,) I was able to make the correct diagnosis by means of the simple inspection and microscopic examination of the stools, supplemented by the functional tests which will be described presently.

The gross appearance of the stools may be of considerable assistance in the diagnosis. Very bulky stools, up to 500 or 600 grams in 24 hours, are very suggestive of pancreatic obstruction, as is also the appearance of macroscopic fat. This latter, provided that diarrheal diseases and great excess of fat in the diet are excluded, is practically pathognomonic. It has been said, however, to be of rare occurrence in disease of the pancreas. This is not so, for masses of fat visible with the naked eye have been present in five out of six cases of closure of the pancreatic duct which I have investigated. It is only necessary that the diet should contain at least a moderate amount of fat, and that the feces should be examined carefully in a good light. Usually the fat was in the form of yellow or brownish con-

gealed masses adhering to the outside of the feces; in two cases it was present in large quantity, resembling butter. In one instance a small lump of purulent-looking material was found in the center of a formed stool, and proved on examination to consist entirely of large globules of neutral fat. In simple jaundice the fat is never visible as separate masses, but may give a glistening appearance to the surface of the stool.

With the miscroscope, globules of neutral fat, soap, and fatty acid crystals may be detected. The mere presence of microscopic neutral fat is of little import, but if it is in large excess, some weight may be attached to it, providing intestinal diseases can be excluded.

The presence of azotorrhea is of less importance than the disturbance of fat absorption, but when found in connection with the latter, strengthens the diagnosis. Small pieces of meat may be detected with the naked eye, and with the microscope countless muscle fibres are seen, usually with the cross-striations preserved.

Glycosuria when present is an aid to the diagnosis, but it rarely occurs in those diseases of the pancreas which lead to deficiency of the external secretion. And conversely, when symptoms of interference with the external secretion appear in diabetics, the probability is very strong that the lesion producing glycosuria is in the pancreas.

It remains to consider several tests which have been proposed as functional tests of the pancreas. Most of them depend upon the proteolytic action of trypsin.

The first of these is Sahli's glutoid capsule. This is a gelatine capsule hardened with formalin to such a degree that it is supposed not to be acted upon by any of the ferments except trypsin. It is filled with salol. The capsule is swallowed by the patient, and if trypsin is present, the capsule is digested and the salol absorbed, so that within four to six hours it can be detected in the urine by the addition of ferric chloride. This test is unreliable because it is impossible to standardize the capsules, and some will dissolve easier than others. It is not entirely without value, however, if considered in connection with the results of other tests.

The Schmidt nucleus test rests on the supposition that the nuclei of meat are attacked only by trypsin. Small cubes of beef are hardened in alcohol and enveloped in gauze sacks are

administered to the patient, and can usually be recovered from the feces. They are then washed, hardened, and sections are cut and stained. Schmidt claims that if the nuclei are well stained everywhere except at the periphery, and the time of passage through the intestine has not been too rapid or greatly delayed, this is positive proof of a deficiency of the pancreatic secretion in the intestine. A negative result is of no value. My experience with this test, which tallies with that of the late Dr. Steele of Philadelphia, is that it is of little use, being positive in cases where at autopsy there is no discoverable lesion of the pancreas. It was positive in all six of my cases of closure of the pancreatic duct, so that a negative test would probably tend to exclude duct obstruction.

Another test for the presence of trypsin, recently proposed, is based on the method of Müller and Jochmann for the demonstration of proteolytic ferments. It is found that the feces of normal persons, if cathartics are previously administered so that the stools are watery, will digest blood serum. A small amount of feces is placed on a blood serum plate and placed in the incubator. After a certain time a hollow will be found at the spot, due to the digestion of the blood serum. This test has not yet been extensively tried, but it is probable that here also a negative result would not certainly exclude the presence of trypsin.

An ingenious way of obtaining duodenal contents has been worked out by Boldireff, one of Pawlow's pupils. After the administration of olive oil, a regurgitation of duodenal contents into the stomach takes place, and the fluid may be removed with the stomach tube afterwards. Normally trypsin almost always can be detected in this fluid. The presence of trypsin would of course exclude complete obstruction of both pancreatic ducts, and its repeated absence would suggest disease of the pancreas. And in fact Volhard has diagnosticated chronic pancreatic disease on the repeated absence of trypsin in the duodenal contents, and the diagnosis was confirmed by autopsy.

Of the urinary tests for disease of the pancreas, the Cammidge reaction has excited wide interest. It consists in boiling the urine with HCl, neutralizing with lead carbonate, precipitating with lead acetate, and removing the excess of lead with sodium sulphate. The phenyl-hydrazine test is then applied, and if positive, shows delicate sheaves of yellow crystals.

Cammidge still claims for this test that it is always positive

in all forms of chronic pancreatitis, and is usually negative in cancer of the organ. It was found negative by him in all of fifty normal persons, and in all but four of ninety-six cases of "miscellaneous diseases."

Unfortunately, the work of Cammidge has not received confirmation. The crystals have been found in all kinds of disease, and the test has proved negative in some cases of pancreatitis. Dr. P. W. Harrison, at the Massachusetts General Hospital, has recently investigated the reaction, following very exactly the directions of Cammidge. In an undoubted case of severe chronic pancreatitis, and in one of acute hemorrhagic pancreatitis, the reaction was negative, while characteristic crystals were obtained in a great variety of diseases not at all connected with the pancreas, e. g., malaria, typhoid, pernicious anemia, acute lymphatic leukemia, cancer of the descending colon, acute cholecystitis with normal pancreas at autopsy, etc.

The amount of the ethereal sulphates is often diminished in pancreatic diseases, owing perhaps to the fact that bacteria do not act on native proteids as easily as on the products of tryptic digestion. This, as Edsall has pointed out, may be of value where conditions are present which would normally cause an increase of the ethereal sulphates, such as constipation. Several instances of duct obstruction have been reported, however, with normal values for these substances, and I have recently observed such a case.

The ethyl butyrate test for fat-splitting ferment in the urine, suggested by Opie, has not been used to any extent. It was found by him in a case of acute hemorrhagic pancreatitis, that the addition of a few drops of ethyl butyrate to the urine, after neutralization, resulted in an acid reaction, due to the development of butyric acid by the action of a fat-splitting ferment.

In general, it may be said of all these functional tests, that they are inconclusive if applied alone, but that if all or nearly all are positive, the probability of pancreatic disease is very great. The disturbances of fat and proteid digestion remain the most reliable indications of a deficiency of pancreatic juice.

# Editorial

"Eyes, Pansay—all Eyes, Brain and Stomach. And the greatest of these three is Stomach. You've too much conceited Brain, too little Stomach, and thoroughly unhealthy Eyes. Get your Stomach straight and the rest follows. And all that's French for a liver pill. I'll take sole medical charge of you from this hour! for you're too interesting a phenomenon to be passed over."

RUDYARD KIPLING.

*The Phantom 'Rickshaw.*

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**Adsit laetitiae Bacchus dator et bona Juno**

From the many complimentary things said about it the ANNALS has come to regard itself as the focus of literary achievement in medical Albany. But pride is always doomed to disaster, and our periodical, at the height of glory, finds its supremacy most unexpectedly and seriously threatened—not from an unsuspected quarter, however, for there have long been signs of artistic phraseology and grace of diction in the Bender Hygienic Laboratory, where culture has not been confined to physical science. The training of the members of the Bender Laboratory Club has recently shown its fruits in a most glorious efflorvescence, in the form of a pamphlet menu used at a dinner given by the club in honor of the departure from Albany of two of its most eminent representatives, Dr. Holmes Condict Jackson and Dr. S. Burt Wolbach. This publication appears in *fac simile* of a volume of the reprints of the laboratory, which have gained wide fame. It may be regarded as ultra-scientific, and as such, loses no opportunity to draw upon the dead languages. Hence the attempt of the ANNALS to redeem its prestige by a caption from the Latin epic. Here are the viands of which these learned men partook:

I. Mistura Alcoholis Composita: Its influence as an Appetizer,
By M. HATTAN, L. B.[1] and M. ART. INI, LL. B.[2]

II. The End Result of Boiling Certain Portions of Chelonia Midas with Other Substances.
By C. GREEN TURTLE, M. L. D.[3]

III. Raphanus Sativus Ruber and Olea Uropea Chlora. Two Commonly Occurring Cocci.
By R. A. Dish, Agric. B.,[4] and Olive Dago, F. B. S.[5]

IV. Is the Meat of Salmo Fontanalis always Yellow. A Collective Study upon Thirty Individuals.
By B. Rook Trout, M. S. O. L.,[6]

V. The Gross Anatomy of Sections of Bos Taurus at Certain Levels.
By Pine Plank, D. V. S.,[7]

VI. Do the Various Ingredients of Salad Lose their Identity When Mixed. A Query.
By T. Wal Dorf, F. S. A.,[8]

VII. A Note on the Freezing Point of Cream-Sugar Mixtures.
By Hampton C. Hef, A. M. C.[9]

VIII. A Study of the Cultural Characteristics of Spir. Tyrogenum Odoriferum when Grown on the Casein of Cows Milk.
By MM. Camembert et Biscuits.

IX. The Infusion of Coffea Arabica and its Effect upon Sleep.
By A. Black Bean, H. D. C.,[10]

X. A Comparison of the Effect of Beer and Mineral Water on the Secretions.
By S. T. Eins, A. L., [11] and A. Cyathus, Q. S., [12]

XI. The Effect of Nicotine and the Pyridine Bases upon the Latent Period and Rate of Aseptic Post-prandial Cerebral Activity during the First Four Hours.
By H. V. Ana, H. C. J.,[13]

*Appendix Vermiformis*

[1] L. B.—Licentiate at the Bar. [2] LL. B.—Another attendant at the Bar. [3] M. L. D.—This dose is at least lethal for the animal in question and in the soup. [4] Agric. B—No married man need apply. [5] F. B. S.—Fellow Societatis Botanicalis. E. Pluribus Unum. [6] M. S. O. L.—Member Society Outdoor Life. [7] D. V. S.—It may need a surgeon to cut it, and perhaps a veterinary. [8] F. S. A.—Fiat secundum artem. We hope it has been obeyed. [9] A. M. C.—(Not the usual meaning) Magister artium culinarium. Milk and corn-starch. (M. A. C.)[10] H. D. C.—Hora decubitus. Any old time. [11] A. L.—Ad Libitum. As far as you dare without fear of rupture. [12] Q. S.—Quantum sufficit. This is too much. [13] H. C. J.—One who knows.

And here are the learned men who partook:

**Living Ex-Presidents**

George Blumer Richard Mills Pearce

### Voluntary Assistants

La Salle Archambault, *Adjunct Professor of Nervous Rhetoric*
G. E. Beilby, *Sleep Walking*
Kenneth D. Blackfan, *Dietitian*
S. L. Dawes, *Pharmacist*
Malcomb Douglas, *Theory and Practice of Automobiling*
A. W. Elting, *Surgical Mythology*
N. K. Fromm, *The Diagnosis and Prognosis of Skirts*
J. H. Gutman, *How to Tell the Wild Pitches from the Foul Strikes*
Wm. A. Krieger, *Alcohology*
A. T. Laird, *The Technique of Disorder*
H. Judson Lipes, *Section Work (Caesarian)*
H. D. Pease, *The Care and Feeding of Horses*
J. F. Rooney, (*Subject to Change without Notice*)
J. A. Sampson, *Canine Gynecology*
F. C. Schaible, *Experimental Music*
H. P. Sawyer, *Plane and Solid Photography*
H. I. J. K. L. Shaw, Esq., A.B., M.D., *Diseases of Kittens and Puppies*
Chas. K. Winne, Jr., *The Advantages of Culture(s)*

### Distinguished Foreigners

L. K. Baldauf
E. J. Buchan
W. M. Dwyer
H. E. Robertson
E. W. Becker
H. W. Carey
C. W. L. Hacker
J. F. Robinson
E. F. Sibley

### Unidentified

E. Corning
T. F. Doescher
C. B. Hawn
H. Rulison
J. L. Donhauser

And here are what some of these learned men talked about—fluently, there can be no doubt:

## PART II

(Erastus Corning, M. D., *Director,* 10.00 p. m. to —?)

### ORIGINAL COMMUNICATIONS

I. A Clinical Study of the Early Life History of Holmes Condictum Jacksonium.
By Harry W. Carey, M. D.

II. A Critical Review of the Troubles Encountered in Teaching Surgical Pathology: With Some Remarks on the Troubles of Teachers in General.
By ARTHUR W. ELTING, M. D.

III. The Chemical Inter-Relation of Things in General with the Non-Specificity of Immune Toxins: with Especial Reference to the Viability of Homologous Hemolysins Existing under Para-Autolytic Conditions at a Temperature of 980° C.
By MARCUS D. CRONIN.

IV. A Presentation of the Scientific Methods by which an Unendowed Pathological Laboratory may be Conducted with Particular Reference to
(1) the Ultimate Good of the Director, and
(2) the Proper Correlation of Research and Politics.
By RICHARD MILLS PEARCE, M. D.
of Albany, New York, Philadelphia and North-East Harbor.

V. The Motility of Pathologists. A Preliminary Note. Including a Statistical and Comparative Study of the Trains between Boston and Albany, and between Albany and Montreal.
By S. BURT WOLBACH, M. D.

VI. Are Physiological Chemists Human Beings or Chemical Compounds? *
By HOLMES C. JACKSON, Ph. D.

Many who would have enjoyed this feast of reason and of soul, were deprived of that enjoyment. None the less is the spirit of good will for the departing colleagues universal in Albany. The value of Dr. Jackson's and Dr. Wolbach's work is most generally recognized, and those who were not permitted to personally testify, are ready to unite with the laboratory staff in the regret that these two good men are to go, and in felicitations that they are called to opportunities of higher endeavor.

P. S.—Why Virgil wrote "adsit" instead of "adsint" the ANNALS does not know. But the ANNALS hesitates, even under the aegis of science, to attempt any changes in the original.

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*A research carried out under a grant from The Anti-Vivisection Institute for Experimental Humanity.

# Public Health

Edited by Joseph D. Craig, M. D.

DEPARTMENT OF HEALTH—ALBANY, N. Y.

ABSTRACT OF VITAL STATISTICS FOR JUNE, 1909

*Deaths.*

| | 1905 | 1906 | 1907 | 1908 | 1909 |
|---|---|---|---|---|---|
| Consumption | 15 | 16 | 13 | 21 | 11 |
| Typhoid fever | 1 | 1 | 0 | 0 | 0 |
| Scarlet fever | 0 | 1 | 1 | 1 | 0 |
| Measles | 2 | 0 | 0 | 1 | 0 |
| Whooping-cough | 0 | 1 | 0 | 1 | 1 |
| Diphtheria and croup | 2 | 11 | 4 | 3 | 3 |
| Grippe | 1 | 1 | 0 | 0 | 0 |
| Pneumonia | 2 | 6 | 5 | 6 | 4 |
| Broncho-pneumonia | 2 | 4 | 2 | 2 | 0 |
| Bright's disease | 14 | 10 | 9 | 14 | 18 |
| Apoplexy | 5 | 4 | 5 | 6 | 8 |
| Cancer | 8 | 5 | 5 | 10 | 13 |
| Accidents and violence | 7 | 6 | 8 | 8 | 12 |
| Seventy years and over | 18 | 26 | 23 | 20 | 29 |
| Deaths under one year | 13 | 15 | 19 | 9 | 17 |
| Total deaths | 109 | 137 | 126 | 119 | 142 |
| Death rate | 11.93 | 16.60 | 15.32 | 14.47 | 17.26 |
| Death rate less non-residents | 10.51 | 15.20 | 12.52 | 12.76 | 15.07 |

*Deaths in Institutions*

| | 1905 | | 1906 | | 1907 | | 1908 | | 1909 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Resident | Non-resident | Resident | Non-resident | Resident | Non-resident | Resident | Non-resident | Resident | Non-resident |
| Albany Hospital | 3 | 6 | 10 | 7 | 10 | 9 | 6 | 5 | 12 | 5 |
| Albany Penitentiary | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Albany Orphan Asylum | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| County House | 1 | 0 | 4 | 0 | 2 | 2 | 2 | 7 | 2 | 1 |
| Homeopathic Hospital | 2 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 6 |
| Hospital for Incurables | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| House of Shelter | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| House of Good Shepherd | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Home for the Friendless | 1 | 1 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Home for Aged Men | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Little Sisters of the Poor | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 2 | 1 | 0 |
| Public places | 1 | 2 | 2 | 0 | 0 | 2 | 2 | 0 | 0 | 5 |
| St. Margaret's House | 2 | 0 | 2 | 1 | 1 | 1 | 0 | 0 | 3 | 0 |
| St. Peter's Hospital | 4 | 2 | 7 | 3 | 6 | 2 | 6 | 3 | 6 | 3 |
| Child's Hospital | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Dominican Convent | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Tuberculosis Hospital | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Maternity Hospital | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |

| | |
|---|---|
| Births at term | 101 |
| Marriages | 0 |
| Still births | 7 |
| Premature births | 1 |

## Bureau of Plumbing, Drainage and Ventilation

In the Bureau of Plumbing, Drainage and Ventilation there were two hundred fifty-two inspections made of which one hundred thirty-eight were of old houses and one hundred fourteen of new houses. There were seventy-six iron drains laid, forty-six connections to street sewers, forty-nine tile drains, two urinals, one latrine, one hundred four cesspools, one hundred five wash basins, one hundred twenty-eight sinks, one hundred five bath tubs, one hundred two wash trays, one butler's sink, one trap hopper and one hundred sixty-four tank closets. There were one hundred ninety-four permits issued, of which one hundred thirty-four were for plumbing and sixty for building purposes. There were forty-four plans submitted of which twelve were of old buildings and thirty-two of new buildings. There were sixty-nine houses tested, eighteen with blue or red and there were six peppermint tests and forty-five water tests. Sixty-four houses were examined on complaint and forty-eight were re-examined. Twenty-one complaints were found to be valid and forty-three without cause.

## Bureau of Contagious Disease

*Cases reported*

| | 1905 | 1906 | 1907 | 1908 | 1909 |
|---|---|---|---|---|---|
| Typhoid fever | 4 | 1 | 2 | 5 | 1 |
| Scarlet fever | 6 | 17 | 16 | 46 | 10 |
| Diphtheria and croup | 17 | 47 | 41 | 13 | 9 |
| Chickenpox | 1 | 4 | 8 | 9 | 5 |
| Measles | 32 | 2 | 18 | 23 | 22 |
| Whooping-cough | 3 | 1 | 0 | 0 | 0 |
| Consumption | 0 | 2 | 17 | 29 | 32 |
| Smallpox | 0 | 0 | 0 | 0 | 1 |
| Total | 63 | 74 | 102 | 125 | 80 |

*Contagious Disease in Relation to Public Schools*

| | *Reported* | | *Deaths* | |
|---|---|---|---|---|
| | D. | S. F. | D. | S F. |
| Public School No. 21 | 0 | 1 | 0 | 0 |
| Public School No. 24 | 0 | 1 | 0 | 0 |

Number of days quarantine for diphtheria:
Longest..... 19 Shortest..... 4 Average..... 10 1-3

Number of days quarantine for scarlet fever:

Longest..... 35 Shortest..... 15 Average..... 24 4–9

Fumigations:

Houses..... 22 Rooms..... 101

| | |
|---|---|
| Cases of diphtheria reported | 9 |
| Cases of diphtheria in which antitoxin was used | 8 |
| Cases of diphtheria in which antitoxin was not used | 1 |
| Deaths after use of antitoxin | 3 |

*Bender Report on Tuberculosis*

| | |
|---|---|
| Positive | 8 |
| Negative | 28 |
| Failed | 0 |
| Total | 36 |

*Tuberculosis*

| | | |
|---|---|---|
| Living cases on record June 1, 1909 | | 355 |
| Reported during June, 1909: | | |
| By telephone | 1 | |
| By Bender | 7 | |
| By card | 17 | |
| | 25 | |
| Dead cases reported by certificate | 8 | |
| | | 33 |
| | | 388 |
| Dead cases previously reported | 4 | |
| Dead cases not previously reported | 8 | |
| | | 12 |
| Living cases on record July 1, 1909 | | 376 |
| Total tuberculosis death certificates filed June, 1909 | | 11 |

## Bureau of Pathology

*Bender Laboratory Report on Diphtheria*

| | 1905 | 1906 | 1907 | 1908 | 1909 |
|---|---|---|---|---|---|
| Initial positive | 9 | 30 | 25 | 16 | 6 |
| Initial negative | 13 | 39 | 28 | 41 | 18 |
| Release positive | 0 | 23 | 52 | 19 | 1 |
| Release negative | 9 | 61 | 108 | 75 | 25 |
| Failed | 0 | 29 | 16 | 6 | 7 |
| Total | 31 | 182 | 229 | 157 | 57 |

Examination for tuberculosis:

| | | | |
|---|---|---|---|
| Initial positive | 4 | 4 | 10 |
| Initial negative | 30 | 13 | 25 |

## Bureau of Markets and Milk

| | |
|---|---|
| Market re-inspections | 100 |
| Public market inspections | 26 |
| Fish markets inspected | 9 |
| Fish peddlers inspected | 10 |
| Milk wagons in clean condition | 9 |
| Butter fats below 3% | 0 |
| Butter fats from 3 to 3.5 % | 1 |
| Butter fats from 3.5 to 4% | 7 |
| Butter fats over 4% | 1 |
| Solids below 12% | 1 |
| Solids from 12 to 12.5% | 1 |
| Solids from 12.5 to 13% | 3 |
| Solids over 13% | 4 |

## Bureau of Milk

| | | Butter Fats | | | | Solids | | | |
|---|---|---|---|---|---|---|---|---|---|
| No. | Specific Gravity | Under 3% | 3 to 3.5% | 3.5 to 4% | Over 4% | Under 12 % | 12 to 12.5% | 12.5 to 13% | Over 13% |
| 40 | 33.1 | .. | 1 | .. | .. | .. | 1 | .. | .. |
| 8 | 30.6 | .. | .. | 1 | .. | 1 | .. | .. | .. |
| 62 | 33.1 | .. | .. | 1 | .. | .. | .. | 1 | .. |
| 65 | 34.7 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 106 | 32.6 | .. | .. | 1 | .. | .. | .. | 1 | .. |
| 108 | 35.1 | .. | .. | .. | 1 | .. | .. | .. | 1 |
| 159 | 33.1 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 170 | 33.1 | .. | .. | 1 | .. | .. | .. | 1 | .. |
| 341 | 33.6 | .. | .. | 1 | .. | .. | .. | .. | 1 |

## Miscellaneous

| | |
|---|---|
| Mercantile certificates issued to children | 40 |
| Factory certificates issued to children | 25 |
| Children's birth records on file | 65 |
| Number of written complaints of nuisances | 63 |
| Privy vaults | 7 |
| Plumbing | 14 |
| Other miscellaneous complaints | 42 |
| Total number of dead animals removed | 944 |
| Cases assigned to health physicians | 81 |
| Calls made | 180 |

# In Memoriam

## Russel G. Andrew, M. D.

Dr. Russel G. Andrew, a practicing physician at Navesink for the past forty years, died on Tuesday afternoon, July 6, 1909, of liver and kidney trouble, aged sixty-nine years. For three years he had suffered from the effects of a serious illness and had never fully recovered. The death of his son, Dr. Russel G. Andrew, Jr., two years ago, was a great blow to him and hastened his end.

Dr. Andrew was the son of the Reverend Brummel Andrew, a Methodist preacher, and was born at Barnegat. He graduated from the Albany Medical College in the class of 1866. Two years later he married Miss Susie E. Johnson, daughter of William Johnson of Locust and a sister of John M. Johnson of Navesink. For many years he enjoyed a very lucrative practice, particularly among the wealthy families of the Highlands and Locust.

Dr. Andrew was a man of positive convictions, but even those who differed from him never doubted his sincerity of purpose. In politics he was a Democrat, but party ties never had any claims on him when moral issues were involved. He was thoroughly honest in every relation of life and in his death Navesink lost one of its best and most honored citizens.

Besides a widow, Dr. Andrew is survived by one daughter, Mrs. C. Albert Mount of Locust. He leaves also four brothers, Rev. Joseph F. Andrew of Paterson, Dr. Brummel Andrew of Jersey City, William E. Andrew of Atlantic Highlands and Heman Andrew of Jersey City, and one sister, Mrs. Joseph Lufburrow of Plainfield.

Dr. Andrew was a member of the Episcopal church, but attended the Methodist church for many years and sang in the choir.

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# Current Medical Literature

## REVIEWS AND NOTICES OF BOOKS

*A Textbook of Physiology.* For Students and Practitioner. By George V. N. Dearborn, A. M. (Harvard), Ph.D., M. D. (Columbia), Professor of Physiology in Tufts College, Medical and Dental Schools, Boston. Octavo, 550 pages, with 300 engravings and 8 colored plates. Cloth, $3.75 net. Lea & Febiger, Publishers, Philadelphia and New York, 1908.

The author of this volume must be complimented upon the extreme originality of the pictorial description. Outside of the usual number of well-chosen illustrations, there appear many diagrammatic sketches attempting to visualize certain of the abstract conceptions in chemistry and physiology. And in this great degree of success has been attained; since the diagrams cannot fail to give the reader a clearer notion of the abstruse

questions which they endeavor to elucidate. Otherwise the contents of the book follow the beaten path, covering what one might expect to hear in the usual lecture course of the average medical school. It is questionable whether some of the subjects are discussed with sufficient detail to satisfy the requirements of the students in some of the more advanced schools. The book appears somewhat uneven in calibre; and the reason for arrangement of the topics is hard to find. The physiology of the muscle is covered only by some laboratory exercises at the back of the book. It is unfortunate that certain topics are neglected simply on account of the fact that two possible theories exist as to cause of action, e. g., the effect of bile on fat digestion and absorption and the cause of the rhythmicity of the heart beat. It would seem that the reader should be given some conception to carry away even though the explanation did not cover every criticism. The subject matter is written in a clear conclusive manner and one finds no ambiguous statements—a great advantage for a text-book. Upon the whole for the purpose of a not too detailed study of the subject, the book certainly has a place and can be recommended.

H. C. JACKSON.

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*The Baby; Its Care and Development; for the Use of Mothers.* By LE GRAND KERR, M. D. Author of "Diagnostics of the Diseases of Children," Professor of the Diseases of Children in the Brooklyn Post-Graduate Medical School; Attending Physician to the Children's Department of the Methodist Episcopal (Seney) Hospital; Visiting Physician to the Children's Wards of the Williamsburgh Hospital, and of the Swedish Hospital in Brooklyn, N. Y., etc. Illustrated. Albert T. Huntington, Brooklyn, N. Y., 1908.

The author has endeavored to provide a ready reference book for mothers on the care, feeding, and development of babies during the first two years of life. He emphasizes that any attempt of the mother to perform the duties of the doctor can result only in harm to the child. For this reason technical terms have been omitted and in the chapter on the sick child no drugs or prescriptions are mentioned. The sections on constipation and diarrhea give the mother all the information she needs to know and the temptation to mention household remedies and much advertised nostrums has been resisted. The author has not been quite so consistent in the section on the care of the eyes in the first days of life as the mother (presumably) is advised to drop two drops of a two per cent. solution of nitrate of silver solution into each eye after birth to prevent disease.

An original feature is the chronological division into months of the first year of the child's life giving the various physiologic changes and special needs of each month by themselves. Theoretically this is commendable, but practically it will be found that babies of the same age differ greatly from each other.

The book is neatly printed but the illustrations are few in number and not of special value or merit.

Blank pages are inserted at the end of the book in which to record the weight, height, illnesses, etc., of the baby.

The physician can with safety recommend this book to any mother and be assured that she will not attempt to practice medicine with it as her guide.

H. L. K. S.

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*A Manual of Diseases of Infants and Children.* By JOHN RUHRAH, M. D., Clinical Professor of Diseases of Children, College of Physicians and Surgeons, Baltimore. 12mo volume of 423 pages, fully illustrated. Philadelphia and London: Second Edition. W. B. Saunders Company. Flexible leather, $2.

The first edition of this book was reviewed at length in the ANNALS of January, 1906. That it is fulfilling its mission is evidenced by the appearance of a second and enlarged edition. The manual is intended primarily for the use of medical students and is not to replace the larger treatises prepared for the medical practitioner or specialist.

In the present edition the author has made a number of additions which enhance its value. Chapters on the medical inspection of school children and on school hygiene will interest physicians as well as medical students.

Attention was called in the former review of this book to the meagre mention of clean sanitary milk. This section has received fuller attention but still no mention is made of certified milk.

The flexible leather cover, clear distinct type and the convenient size of this manual make it an attractive as well as valuable addition to the working library of the medical student.

H. L. K. S.

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*Alimentation et Hygiène des Enfants.* Par J. COMBY, Médecin de l'Hôpital des Enfants malades. Vigot Frères, Editeurs, 23 Place de l'Ecole de Médecin. Un volume in 12 de 532 pages, over 24 figures, 3é edition, 5 francs.

The American mother seems dependent on books to advise and enlighten her on the feeding and management of her children. The popularity of this subject is shown by the many editions of books by numerous authors. The French mother apparently does not differ in this respect for we have before us the third edition of a work by Comby which we are told is intended just as much for mothers as for physicians.

The arrangement differs from the books on this subject which we see in this country. The topics are arranged alphabetically as in a dictionary or encyclopedia. The chapter on feeding is altogether too technical for what does the average lay mind know about the caloric value of food to be given a sick or healthy infant. The utility, indications, and preparation of yaourth, malt soup, buttermilk, pegnin milk, vegetable soup, etc.,

etc., are interesting to a physician but could well be omitted from a work of this character. The sections on baths, school hygiene, growth and development are of decided value and are to be commended.

This book does not conform to conditions and customs in vogue in this country and is of interest in comparing French methods with those we are accustomed to in this country.

H. L. K. S.

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*Clinical Diagnosis and Treatment of Disorders of the Bladder with Technique of Cystoscopy.* By Follen Cabot, M. D., Professor Genitou-urinary Diseases, Post-Graduate Medical School; Attending Genitou-urinary Surgeon, Post-Graduate and City Hospitals, New York. 8vo, 225 pages. 41 illustrations, 1 colored plate. Prepaid $2.00. E. B. Treat & Co., Medical Publishers, 241-243 West 23d street, New York.

Cabot here records what is largely his personal experience in the diagnosis and treatment of disorders of the urinary bladder. He describes his technic of vesicle illumination and ureteral catheterization. While the subjects are discussed very briefly the book contains considerable valuable information.

G. E. B.

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*Blood Examination in Surgical Diagnosis.* A Practical Study of its Scope and Technic. By Ira S. Wile, M. D., New York. Duodecimo, 161 pages; 35 illustrations and 1 double-page colored plate. New York: Surgery Publishing Company, 1908. Cloth, price $2.00; oil cloth for laboratory use, $2.50; De Luxe, ooze leather, price $3.00.

The author in this work has covered very satisfactorily the subject of surgical hematology. The methods of procedure are well described and illustrated, and the interpretations are made with reference to their practical importance and surgical value in diagnosis and prognosis. Owing to the lack of uniformity which exists among surgeons in their interpretation of hematological results, this work should prove of real value.

G. E. B.

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*Constipation and Intestinal Obstruction.* By Samuel G. Gant, M. D., LL. D., Professor of Diseases of the Rectum and Anus in the New York Post-Graduate Medical School and Hospital. Octavo of 559 pages, with 250 original illustrations. Philadelphia and London: W. B. Saunders Company, 1909. Cloth, $6.00 net; half morocco, $7.50 net.

It is a pleasure to review so thorough a treatise on constipation and intestinal obstruction as Gant has presented in this volume of 560 pages. He has treated the subject in a thoroughly scientific manner approaching it from the various phases of etiology, pathology, symptoms, diagnosis

and treatment. Particular attention is called to the various mechanical or surgical causes of constipation and the different operations required for their correction or removal. The benefits to be derived from psychotherapy, diet, and physical measures, such as bodily movements, massage, mechanical vibration and electricity are discussed very fully as well as their indications and technic of application. But little use is made of drugs as a curative agent. The volume is well illustrated with 250 original photographs and drawings. There can be but one opinion as to the practical value of this work. G. E. B.

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*Seven Hundred Surgical Suggestions—Practical Brevities in Surgical Diagnosis and Treatment.* By WALTER M. BRICKNER, B. S., M. D., Assistant Adjunct Surgeon, Mount Sinai Hospital, New York; Editor-in-Chief, *American Journal of Surgery,* ELI MOSCHCOWITZ, A. B., M. D., Assistant Physician, Mount Sinai Hospital Dispensary, New York, and HAROLD M. HAYS, M. A., M. D. *Third Series.* Duodecimo, 153 pages. New York: Surgery Publishing Company, 92 William street. Price, semi-de-luxe, $1.00 full library de luxe, ooze leather, gold edges, $2.25.

This book of 150 pages represents a collection of surgical axioms, each very brief, consisting of only a sentence or two. They are placed in a dozen or more groups representing the various regions of the body.

G. E. B.

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*State Board Questions and Answers.* By R. MAX GOEPP, M. D., Professor of Clinical Medicine at the Philadelphia Polyclinic; Assistant Visiting Physician to the Philadelphia General Hospital. 8vo. Cloth. Pp. 684. Philadelphia and London: W. B. Saunders Company, 1908.

This book, according to the preface, purports to provide a convenient compend for the use of those who wish to prepare themselves for State Board examinations, and consists of a compilation of questions asked by various state boards in the four years ending May, 1908, together with short and concise answers to each question, the latter furnished by the author.

The questions are grouped under their proper headings and sub-headings and afford a convenient source for the student to refresh his memory. If the idea of the book were carried to its logical conclusion, i. e., the purpose of aiding the student to pass a State Board exammination, rather than for the purpose of adding to his real knowledge, the questions should again be grouped according to the State Boards which have issued them, so that he need not waste his time browsing through the 621 pages of questions and answers and filling his head with unnecessary information.

Such a book, too, should be absolutely accurate, and this one certainly is not. For example, in the division devoted to materia medica it says that

the *official* preparation of cascara sagrada is the fluid extract of cascara sagrada (its synonym) instead of fluid extractum rhamnus purshianae; in answer to the question as to the official titles of four pills it gives the official title of one and the common names of three; some remarkable State Board asks "what three alkaloids which are chemically alike and almost identical in physiologic effect? and the remarkable answer is made "cinchonin, cinchonidin, and quinidin;" on page 276 it speaks of "liquor sodii arsenitis" instead of arsenatis; and in stating that the stomach pump should be used in poisoning by carbolic acid and strychnine it fails to note the great caution that should be exercised and the probability of occasioning the death which it is sought to prevent.

Notwithstanding, it will prove itself a most valuable book for those who have use for it, and those, it is sad to reflect, are not few.

SPENCER L. DAWES.

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*A Manual of Clinical Diagnosis.* By JAMES CAMPBELL TODD, Ph.B., M. D., Associate Professor of Pathology, Denver and Gross College of Medicine (University of Denver). Flexible leather. Pp. 318, with illustrations. Price $2.00. Philadelphia: W. B. Saunders Co., 1908.

It is not often that the statements of the author in his preface are accurately borne out by the pages following but such is the case in this book. It presents a clear and concise statement of the more important laboratory methods; it will be of help to the student and practitioner; the methods offered are practical and it is well illustrated. Especially to be commended is the summary at the end of each chapter which considers the subject under consideration as it relates to disease. It is a pleasure to recommend this book for the general practitioner who has not had the benefit of a laboratory training.

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*New and Nonofficial Remedies,* 1909. Containing Descriptions of the Articles Which Have Been Accepted by the Council on Pharmacy and Chemistry of the American Medical Association Prior to January 1, 1909. Cloth. Pp. 168. Price 50 cents. Chicago: American Medical Association, 103 Dearborn avenue.

The determination of the Council on Pharmacy to publish this and succeeding reports on new and nonofficial remedies is a very desirable one, and the book should be welcomed by every physician whether he agrees with the conclusions of the council or not.

It contains the official rules of the council; then an alphabetical list of the remedies with their composition, actions and uses, dosage and the name of the manufacturer; this is followed by a general index and also an index of manufacturers. There is an appendix which has in it the names of several proprietary articles "which comply with the rules, but which did not possess sufficient originality to be admitted to the body of the book." More than two hundred articles are described.

S. L. D.

*Practical Dietetics with Reference to Diet in Disease.* By ALIDA FRANCES PATTEE, Graduate, Department of Household Arts, State Normal School, Framingham, Mass., etc. Fifth Edition. Cloth. Pp. 358. Price $1.00. Mt. Vernon, New York. A. F. Pattee.

Miss Pattee has given us a book which should prove to be of fully as much value to the physician as to the nurse. While its chief excellence lies in the simplicity and brevity of the recipes, nevertheless it has other good points, such as diets in special diseases, diet in infancy and general rules for feeding the sick. S. L. D.

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*The Therapeutics of Radiant Light and Heat and Convective Heat.* By WILLIAM BENHAM SNOW, M. D. Editor of the *Journal of Advanced Therapeutics.* Late Instructor in Electro-Therapeutics in the New York Post Graduate School, etc. New York Scientific Authors' Publishing Co., 1909.

This book is devoted to the elucidation of the physiologic actions, the practical indications, and the methods of employing radiant heat and light, and in showing the similarity of action from the employment of radiant and convective heat. It is profusely and well illustrated and written in a most interesting, if not always convincing manner. The most valuable chapter is the one devoted to the relative action of radiant light and heat and the Roentgen ray. S. L. D.

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*The Changing Values of English Speech.* By RALCY HUSTED BELL. Cloth. Pp. 302. Price $1.25 postpaid. Hinds, Noble & Eldredge, New York City.

From the title one might think that this was some text-book, some dry essay, some soon-to-be-forgotten dissertation on the driest of dry subjects, English grammar, but even a casual survey of its pages serves to show that instead, it is a most charmingly written collection of what, for want of a better name, may be called "storiettes," bristling with epigrams, crowded with graceful phrases, and not wanting in sarcasm.

It traces the origin of the English language from the White Island (Britain) and its aborigines, through Early English down to the present day. The fact that all living languages change and that the "dead" languages represent only decay is brought out and the various factors in the changing value of English speech, such as poetry, authors, and books in general are discussed.

Of all the chapters perhaps the most amusing, the wittiest and not the least correct is the one on English Orthography and "Simplified Spelling," which opens—"I'll have it so. . . Who shall say me nay? said Hotspur," and further continues—"The reformers in English Orthography have never lacked audacity. One of them is strenuous. Very few of them have been afflicted with genius; and scarcely any ever upheld by reason." The book should be owned by every lover of good English.

S. L. D.

## MATERIA MEDICA AND THERAPEUTICS

Edited by Spencer L. Dawes, M. D.

*On Drug Treatment.*

F. Penzoldt. *Folia Therapeutica, October*, 1908.

While the methods of administering drugs are but comparatively few and simple, the number of agents which are used is almost unlimited, just as the number of chemical combinations in existence is unlimited. At the same time, these various substances, which are recommended as curative agents, are valued and used to an extent which is very variable. We may dismiss as unscientific those men, who, like the so-called "Nature Healers," abhor the use of all drugs, and consider those who are content to use twenty or fewer drugs in their practice and contrast them with others, who employ a hundred or more in prescribing for their patients. If we take the entire medical profession into consideration, it may be said without the slightest exaggeration, that many hundreds of drugs and preparations of drugs are used in the civilized world. It can hardly be doubted that the extremes are incorrect, and that "just as he is wrong who uses no drugs, so is he wrong who uses everything that is offered him." It is more difficut to decide whether he who uses few, or he who uses many drugs is correct. We are all agreed as to the efficacy of certain drugs, but drugs which some value highly, others reject absolutely. The reason for this is to be found in the enormous difficulty of making accurate observations of the action of drugs on the diseased organism, depending on the drug, the nature of the illness, and the observer.

The most important factor in inconsistency of results is the quality of the drug. In many, especially the inorganic drugs, the directions in the pharmacopoeia as to the preparation, composition, and chemical purity, afford a certain guarantee that the drug, as obtained from the chemist, really consists of the substance indicated by its name. But with many, even with the greatest of care it is impossible to avoid deviations in their constitution, and therefore in their modes of action. Certain plants, such as cinchona and digitalis, vary greatly in the amount of active constituents which they contain, according to their place of origin. In others the raw materials alter when kept and strength is lost or gained. Pharmaceutical operations can not always turn out exactly the same, even though the greatest care be exercised and such preparations as decoctions, infusions, tinctures and extracts sometimes contain less and sometimes more of the active ingredients. Even well defined chemical substances may contain harmful impurities, bismuth subnitrate being frequently contaminated with arsenic. Organic substances may decompose, producing alterations in their action, and we may be unable, with the ordinary means at our disposal, to discover the cause. Tests are frequently so difficult that we cannot, as in the case of pepsin, expect the chemist to carry them out before he dispenses a drug that may have lost strength from being stored some time. Then the danger of deception by substitution and adulteration is great, especially in remedies of recent intro-

duction. While it is not to be expected that the doctor should know the exact composition of all remedies, or that he will control their purity by reactions, he should have an idea of the sort of chemical compound he is handling and of its visible characteristics. Just as the surgeon regards it as a matter of course that he is acquainted with the exact form, quality, and cleanliness of his instruments, so too, the physician who makes use of drugs in treatment must make it his ambition to become better and better acquainted with the genuineness and efficacy of his drugs.

A further cause of variation is the uncertainty of our diagnosis. Two cases may appear practically identical at a particular time, and yet the further course, or the autopsy, may show that the two cases presented entirely different processes. Even the diseases to which we conveniently give the same name differ most markedly in different patients. We have to consider particularly the rate of absorption and elimination, for these two actions are of fundamental importance. The results of the same remedy will be entirely different according as it is taken into a diseased, and hence badly absorbing, mucous membrane of the digestive tract, or in a healthy absorbing surface. In case of lowered cardiac action, if collapse is far advanced, a drug injected subcutaneously will fail to be absorbed, while earlier it would have been readily taken up. If the functions of the kidneys are interfered with the drug will be more powerful, less powerful when their functions are increased. There is a tolerance to certain drugs in particular diseases, as narcotics in psychic disturbances and quinine in fevers, and further, we are unable to explain the remarkable behavior of certain individuals to particular drugs, which, for want of better knowledge, we designate with the elegant word "idiosyncrasy." Finally, we must not forget that in ordering the drug, we frequently ease the patient's mind, and thus produce, not only subjective, but also objective improvement, or the opposite may occur. The only way to overcome these difficulties is to make our diagnosis as accurate as possible. It is not enough to decide on the disease as one decides on the name of a plant, and then to prescribe to suit. We must first seek to ascertain every abnormal feature in the case, to analyse and weigh every feature, to consider the personal equation of the patient, and then prescribe our remedies. To individualize is therefore necessary both as regards disease and as regards the patient.

Another fault is that our methods of observation are inadequate. We depend too much on the statements of patients and upon subjective impressions. Should improvement occur, we attribute it, as we are more or less sceptical, to the remedy, or to the natural course of the disease. We should avoid prescribing several drugs in one prescription. We must endeavor to avoid being deceived by the patients who attribute their improvement, or the opposite, to the doctor's prescription. Never tell the patient that we expect a definite action from the use of a drug, and never omit to point out any unpleasant secondary results which may be produced.

The writer then refers to the wholesale production of new remedies and preparations, and the dangers arising from them to pharmaco-

therapeutics, to the physician and to the patient. He asserts that the only scientifically correct method of arriving at new remedies is to examine the drug most minutely in the laboratory of the pharmacologist, and to then carefully and thoroughly test it on patients in the clinic, with the guidance derived from its chemical constitution, or the results of the pharmacological investigation. The method most used is for the manufacturer to give the drug a brief pharmacological trial, and then, throw it upon the market with a high sounding name, and with or without the recommendation of one or more medical men as a remedy for all manner of diseases. Unfortunately there are many doctors who make immediate use, in their practice of the preparations which are sent them, some even take them themselves, and to their own hurt.

In closing he says: "A healthy scepticism is the best safeguard, for the doctor as well as the patient, against injury caused by new drugs. There is no need for it to degenerate into complete mistrust; therapeutic nihilism has luckily been done away with. But a wise restraint exercised by the entire medical world is the only means of stemming the tide of new drugs, and of removing the stigma which threatens to alight upon scientific pharmaco-therapeutics.

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*Some Observations on Bornyval.*

C. A. Ewald, *Folia Therapeutica, April,* 1908.

Although many reports on this preparation have appeared during the last few years in the German, French and Italian medical literature, there has been no contribution on the subject from English sources.

Valerian root contains an ethereal oil called borneol, an ether of isovalerianic acid and valerianic acid, the latter being almost exclusively the specific active body in the root. Borneol diminishes reflex irritability while valerianic acid is an antispasmodic. Bornyval is a combination of the two, is a liquid of a clear aromatic character and a faint odor and taste of valerian and camphor. Its therapeutic action is similar to valerian, but the range and extent of its usefulness is greater than is the case with the galenical preparations. The principal indications for its employment are in neurotic conditions, including, on the one hand, slight neurasthenic disturbances and, on the other most pronounced hysterical manifestations. It is useful in the milder forms of neuralgia, in the neurotic troubles of the menopause, in cardalgia, in vasomotor disturbances, in precordial discomfort and allied neuropathies, in nervous dyspepsia and gastralgia, in mild nervous insomnia, in pruritus and dysmenorrhea, and in sexual neurasthenia of a functional origin.

A careful study of the clinical records point to this drug as being a nerve tonic and sedative, absolutely uninjurious and remarkably reliable. While bornyval is, as a rule well borne, is less disagreeable in smell and taste, and is much more reliable in action than valerian itself, there are occasional cases, exceptional ones it may be said, where the patient's stomach will not tolerate the drug because of a burning sensation in the stomach and other gastric disturbances.

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## Original Communications

# HYPODERMATIC MEDICATION IN MODERN THERAPY.

*Read at the Tenth Annual Meeting of the American Therapeutic Society, New Haven, Conn., May, 1909.*

By SPENCER L. DAWES, M. D.,
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When I agreed to prepare a paper upon hypodermatic medication for this meeting, I had small realization of the difficulty of the task before me.

There is but little respect for the pseudo-scientific article which gives a glittering array of generalities, based upon inexact, insufficient, or untrustworthy clinical evidence and not reinforced by laboratory research—and yet there is not much else to be found in the literature directly bearing upon the subject under consideration.

In recent work there are but few articles of value, while of that less modern the greater part is French, and, whether justly or not, the scientific world seems to be unwilling to accept the data of the enthusiastic Gaul without corroborative evidence from the plodding Teuton or the more phlegmatic Anglo-Saxon.

Writers upon materia medica and therapeutics, and teachers of these branches, tell us that the administration of drugs hypodermatically possesses distinct advantages over other methods, such as a more rapid rate of absorption, certainty of effect, quicker elimination with less danger of cumulative action, and no derangement of the digestive processes; and then they proceed, with but rare exceptions, to give the dosage for drugs by the mouth, and in their own practice—if they have any practice—to use them that way.

Why is this the case? Why do most practitioners persist in

using a method which all teachers tell them is an inexact one, when they have a much more accurate one ready at hand?

One of the most potent reasons probably is that in the minds of the laity and of many physicians the term *hypodermatic injection* at once suggests the use of morphia for the relief of pain, for there is but little doubt that nine out of ten physicians never use the hypodermic syringe for any drug but morphia. Another is that the use of the syringe necessitates more trouble to both the physician and the patient than the mere prescribing and swallowing of pill or tablet, the result of course being but a secondary matter.

Then, too, the layman fears pain from the needle; the inexperienced physician has unwarranted fears of abscess and other accidents; he is accustomed only to an antiquated, leather-washered, necessarily unsterile and unsterilizable syringe, leaking from lack of use and with needles plugged with rust and dirt, and visions of malpractice suits float ever before his eyes. The conservative practitioner is certainly unfavorably influenced by the enthusiastic and not always accurate physicians, more particularly those of the French school—and, it must be confessed, not a few American physicians as well—who claim most extraordinary clinical results, entirely unconfirmed by accurate observations and laboratory experimentation, for drugs often considered of doubtful physiologic action; a species of charlatanism which draws to their offices an ever-increasing stream of chronics and neurotics, a majority of whom later drift by natural processes to the osteopath and the various so-called "healers." In this connection, let me quote from a Paris letter in the *Boston Medical and Surgical Journal*,[1] in which the writer who signs himself "Spectator," speaking of the rage for the use of the syringe in Paris, started by Albert Robin in 1894 with the use of the glycero-phosphates, says:

"A physician here who could be mentioned, with a wide practice, divined the possibilities of the method from the start. For a time the waters of Pactolus flowed right past his front door, and it was easy at five-o'clock-teas to pick out his patients, on account of their preference for the erect position, their gluteal regions being so larded with deep injections as to render chairs a delicate subject."

"A fair idea of the point to which this method has developed

[1] *Boston Medical and Surgical Journal*, Vol. CLV, No. 4, July 26, 1906.

will be acquired when we say that Leclere's last catalogue of these preparations covers thirty-three pages, not counting serums, organic extracts, antitoxins, etc."

As scientific men, our position is certainly an untenable one—either our teaching or our practice is at fault. If we have a method for administering drugs far superior to the one we commonly use, why not embrace it and undertake the not very difficult task of educating our patients to its use?

Let us briefly here consider the methods of hypodermatic medication together with some of the disadvantages claimed in connection with it.

It is commonly believed that the rate of absorption is more rapid and that the disadvantages are less in subcutaneous than in intra-muscular injection. This, however, is not in accordance with my own experience. For several years it has been my custom to give all hypodermatic injections intramuscularly, rather than subcutaneously, my clinical observation having taught me that by this method the rate of absorption is much more rapid, the result more accurate, and the discomfort to the patient markedly less. I make a quick, deep thrust, the full length of the needle, preferably in the buttocks. That my conclusions are not at fault is borne out by the very careful and accurate investigations of Meltzer and Auer made upon rabbits. In a report "On the Rate of Absorption from Intramuscular Tissue,"[2] they state their belief that absorption from intramuscular tissue is incomparably faster than from subcutaneous tissue, and that the effect of intramuscular injection stands in value very near that of direct injection into the circulation. They believe that the fluid does not enter directly into the blood, but is first deposited between the muscle fibres and is carried thence into the blood by some process of rapid absorption. The difference is only a matter of degree, consisting only in the quantity which becomes absorbed in a unit of time, and the quantity absorbed is apparently so much larger from intramuscular tissue than from the subcutis that it produces strikingly different results. In concluding their paper, the authors suggest that in therapeutics, intramuscular injection might offer the advantages of an intravenous administration without its dangers. On the other hand, a combination

[2] "On the Rate of Absorption from Intramuscular Tissue"—by S. J. Meltzer and John Auer: The *Journal of Experimental Medicine*, Vol. VII, No. 1, Feb. 25, 1905.

of intramuscular and subcutaneous injections might insure rapidity and intensity together with long duration of action.

The statement is very flatly and very widely made that the use of the syringe t. i. d. for any extended period, would soon become practically impossible for want of fresh tissue into which to insert the needle and the irritation of the tissue already injected into; this entirely aside from any untoward results. In answer to this it can be affirmed that an increasing number of physicians, among whom I am happy to be included, often use the syringe night and morning for weeks at a time without even the suggestion of drawback. If there be abscess, erythema, induration, or any other local disturbance, it is, with but rare exception, always, in my own experience, due to want of care or knowledge in selection of site and mode of operation, or to unsterile instruments or unsterile, improperly prepared or preserved solutions.[3]

An interesting statement as to abscess is made by Achard and Weil,[4] who give notes of several cases of typhoid and pneumonia in which hypodermatic injections were made resulting in abscess, and in each case the specific organism was found in the discharge from the abscess.

It is quite generally believed that the solution for injection should be as little concentrated as possible, yet both clinical experience and experimental research show the contrary. The experiments of Meltzer, which gave uniform results, demonstrated unmistakably that the bulk is nothing and the concentration is everything: the dose being equal, the more concentrated the injection, the more marked the result. As Meltzer says:[5] "The meaning is plain; the osmotic pressure is the most important factor in the process of absorption. The effect of the subcutaneous injection depends to a considerable degree upon the concentration of the injected solutions, and is materially influenced by a greater distribution of the injected quantity over several areas."

A very strongly rooted belief is the one that in certain pathological conditions involving degeneration of the secreting por-

[3] "Some Hints on Hypodermatic Medication." By James Parkinson, *Pacific Medical and Surgical Journal and Western Lancet*, Vol. XXIX, No. 1, Jan. 1886.

[4] "Abcès Métastatiques consécutifs aux injections sous-cutanees, dans les infections pneumococcique et éberthienne." By C. Achard and E. Weil. *Gazette Hebdomadaire de Médecine*. Paris, 1898. n. s., iii. 973–975.

[5] "Some Experimental Data on the Significance of Concentration and of Multiplicity of Area in Hypodermatic Injections." By S. J. Meltzer. *Journal of Experimental Medicine*, Vol. V, No. 6.

tions of the kidneys hypodermatic medication is contraindicated for fear of cumulative action. Here it is of interest to note whether facts correspond with that theory. Meltzer and Salant,[6] made a series of exhaustive experiments on nephrectomized rabbits, and arrive at the following conclusions:

"Our results have also direct practical bearings. It has been argued by physiologists and pharmacologists (L. Herman, for instance) and has been repeatedly maintained by clinicians, that in chronic diseases of the kidneys, where the eliminating power of the organ is considerably reduced, great care should be exercised in the administration of poisonous medicines, lest they may accumulate in the blood with fatal effects. According to our experience with strychnine on animals entirely without kidneys, fatal doses may be gradually introduced without effect, and there is a great difference between even a maximum medicinal and a minimum toxic dose. The animal body apparently possesses a mechanism capable of regulating the cumulative capacities of the blood even in the absence of the kidneys. The influence of the removal of the kidneys on the cumulative effects of other poisonous substances has not yet been studied. Thus the fear of cumulative effect in renal disease rests at present apparently on theoretical grounds alone."

Chéron[7] made a series of experiments from which he deduces that in all hypodermatic injections the total amount of urea eliminated in twenty-four hours is increased, and in the same report he makes the statement that in all injections there is an increased arterial tension and cardiac tonicity. This latter statement at least would seem to be inaccurate if we accept the statements of Meltzer and Salant,[8] and those of Dawes and Jackson.[9] The former find that the injections of bile and bile salts have an inconstant action on the blood pressure, while the latter state that injections of even very large amounts of sodium cacodylate do not affect the arterial tension at all.

It is not within the scope of this article to consider what drugs are best to use hypodermatically, but I can not conclude my

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[6] "The effects of Subminimum Doses of Strychnine in Nephrectomized Rabbits." By S. J. Meltzer and W. Salant. *Journal of Experimental Medicine*, Vol. VI, No. 2, Feb. 5, 1902.

[7] Chéron. "Introduction d'l'etude des lois generales de l'hypodermique."

[8] "The Effects of Intravenous Injections of Bile upon Blood Pressure." S. J. Meltzer and Wm. Salant. The *Journal of Experimental Medicine*, Vol. VII, No. 3.

[9] "Physiologic Action, Absorption, and Elimination of Sodium Cacodylate Used Hypodermatically." Spencer L. Dawes and Holmes C. Jackson. *Journal American Medical Association*, Vol. XVIII, June 27, 1907.

observations without calling attention to some which should not be used that way, and I feel that a word or two as to technic may not be amiss.

The injection of drugs such as cathartic acid, podophyllotoxin, elaterin, magnesium, sulphate and chloride, sodium sulphate, citrate, and phosphate, as well as castor oil, has been advocated, but the uncertainty of their action, the sometimes disagreeable effects produced, as well as our ignorance of dosage, contraindicates their employment.[10] As a rule, drugs not readily soluble, drugs that are irritating, and those which are bulky, should be avoided. It has been believed and asserted that oils such as codliver oil and olive oil may be injected for use as food with excellent results. That such assertions are at variance with the results obtained by recent investigations, the report of Henderson and Crofutt would seem to show. They state that[11] "Oil injected subcutaneously is readily and widely distributed through the subcutaneous spaces. Such oil, however, is not transformed *in situ* into adipose tissue. In fact, the tissues react to its presence as to any non-irritating foreign substance. In the blood, lymph, and milk, it does not appear in any detectable amounts. While the oil is ultimately absorbed and utilized in metabolism, the process is one of extreme slowness. Oil injecjections in any moderate amounts are therefore practically without nutritive value."

Notwithstanding the claims recently advanced for pilocarpine hydrochloride used hypodermatically in apparently hopeless cases of strychnine poisoning, Meltzer and Salant[12] have shown by very careful experimentation on animals that not only are such injections without beneficial effect, but that the addition of pilocarpine seems to support the poisonous effects of strychnine: that by its aid an ineffective subminimum dose may have a toxic, or even fatal, effect.

The syringe of choice is one made entirely of glass, either with piston ground to fit, or with asbestos packing. This style of syringe allows of perfect sterilization, has no valves or joints to leak, and it is possible to see if a perfect solution has been

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[10] "Effect of Injections of Saline Purgatives." By John Auer. *American Journal of Physiology*, Vol. XVII, No. 1, p. 15.

[11] "Observations on the Fate of Oil Injected Subcutaneously." By Yandell Henderson and Edward Francis Crofutt. *American Journal of Physiology*, Vol. XIV, No. 3, p. 193.

[12] "The Effect of Pilocarpine Hydrochloride in Strychnine Poisoning." S. J. Meltzer and Wm. Salant. *Journal American Medical Association*. Vol. XLIII, No. 27, Dec. 31st, 1904.

made. The needle should not be less than two centimeters in length from point to shoulder, and not too slender. Stock solutions are to be avoided on account of the development of the fungi which live at the expense of the alkaloid and make the strength of the solution uncertain. My practice is to first boil the water, then, having withdrawn the piston, to empty the powder or tablet into the syringe barrel and replace the piston. The needle is next boiled and affixed, and a sufficient quantity of the boiled water drawn into the syringe. The site of the injection is scrubbed and by this time the solution is perfect and its temperature is about that of the body, at which temperature absorption is most rapid and discomfort is least. The needle is quickly thrust as far as its shoulder into the muscle, and the injection slowly made. If, on withdrawing the needle, a little alcohol is drawn into the barrel and allowed to remain there, the syringe will remain practically sterile for the next injection and the needle will not rust and needs no stylette.

This is my invariable custom, and in several thousand injections I have never seen an abscess, a pulmonary embolus, harm from punctured vein or other untoward result.

The most desirable sites for injection are, the gluteal region, posterior portion of the thigh at the junction of the upper and middle thirds, the calf of the leg, the scapular region, the anterior portion of the thigh and the fore-arm, in the order named.

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## ACUTE DIFFUSE SUPPURATIVE PERITONITIS.

*Read before the Dutchess Medical Club at Poughkeepsie, N. Y., April 26, 1909.*

By J. E. SADLIER, M. D.,

*Poughkeepsie, N. Y.*

It is less than ten years ago that the great clinician and surgeon, Dr. John B. Murphy of Chicago, in a discussion of the subject of acute diffuse suppurative peritonitis before the American Medical Association at Atlantic City, after referring to the frightful mortality attached to that condition during the past several decades, made the prediction that acute diffuse suppurative peritonitis would "practically always prove fatal." But that was nearly ten years ago and will have to pass into history as a prediction that was not fulfilled, for the same author

in June of 1908 reports fifty consecutive cases of acute suppurative peritonitis resulting from perforation of some part of the intestinal tube with forty-eight recoveries; a percentage of recoveries unprecedented in the history of the disease, and in making this report Dr. Murphy apologizes for his former gloomy prediction.

To enter into detail as to what has brought about this great change in the prognosis of so serious a malady would involve too much for the limitations of this paper, but my object will be simply to give an outline of the methods employed at present together with a few of the reasons for using them, and I shall try to demonstrate that with proper care much more can be accomplished than formerly in the management of this disease.

I shall deal only with diffuse suppurative peritonitis, that is spreading infection of the peritoneum, and in doing this will recognize all abscesses and infections limited by adhesions, be they ever so delicate, as circumscribed or local, and while I appreciate that such a local condition may extend from diaphragm above to pelvis below, yet such circumscribed conditions will not come within the scope of this paper.

The first and most important point in treating this infection is to diagnose and remove the cause, for it is thoroughly understood by all that a lesion of any organ lying contiguous to the peritoneum may serve as a source of infection, providing there is a perforation or a sufficient necrosis of intervening tissue to allow the migration of bacteria or the leakage of the contents of any of the hollow viscera contained in the abdominal cavity. In other words, the most important agent against diffuse suppurative peritonitis is the prophylaxis which consists of preventive surgery, viz., the removal by operation of the cause, for although the peritoneal infection is secondary to lesion of some organ, it may become primary both in importance and in the treatment.

Even though it has passed the stage where removal of the initial lesion will check the farther spread of the infection, we must nevertheless recognize the fact that acute septic infection of the peritoneum is always a surgical condition and requires skill, dexterity and aptness upon the part of the surgeon as almost no other class of disease, and while it may happen that once in a great while one of these cases would recover under medical treatment, the mortality and morbidity rate would be

so excessive as to give it no place in the scientific treatment of the disease. One might as well consider the treatment of any local abscess upon medical lines.

Operation is indicated first in order to give vent to the products of inflammation, pus, sero-pus and the escaped contents of wounded or perforated viscera; for peritonitis is dangerous directly in proportion to the absorption. It is not the inflammation of the peritoneum that is fatal, but the toxins that are absorbed from its products which cause the severe and perhaps fatal manifestations.

Secondly, operation is indicated for the purpose of removing or otherwise dealing with that organ or viscus from which the inflammation originally started.

Thirdly, operation is indicated in order to cleanse as far as possible, the walls and recesses of the infected cavity, if in the operator's judgment it is wise and judicious to practice this plan. For reasons to be cited later, I seriously doubt the efficiency of often practicing lavage of the peritoneal cavity and consider that no point in the treatment of these cases requires more discrimination and judgment. In fact, from the time of diagnosis to the establishment of convalescence it is incumbent that there should be used the greatest skill possible in order not only to prevent the absorption of toxins, but in order to render all aid to improve rather than diminish the patient's resistance to the infection; and as the patient's resistance to the infection is in an inverse ratio to the amount of time that has elapsed from the onset of the disease to the point where diagnosis and operative interference are established, so it is incumbent upon us in all cases to endeavor to make early, accurate diagnosis. Hence, it is important in every case of abdominal pain to carefully note the character of the pain, the location and extent of the tenderness upon palpation, to be guided by the rigid abdominal muscles, absence or limitation of abdominal breathing the marked thoracic respiratory excursion with the abdomen first scaphoid in character, which later gives way to the marked tympany and distention so common to the advancing case of diffuse peritonitis.

One of the most important signs is the persistent nausea and vomiting which generally characterizes the case from beginning to end, the character of vomited material being first stomach contents, then the characteristic green vomit, perhaps later be-

coming stercoraceous. It is considered probable that the vomiting to a certain extent is nature's effort to eliminate toxins which have been absorbed and thrown into the gastro-intestinal canal.

As distention and adynamic ileus develop we get the cessation of peristalsis due to toxic or bacterial poisoning of the intestinal walls with manifest changes in the ganglion cells of Auerbach's plexus, and now we notice that deadly symptom, viz., "the silent belly," the abdomen in which, with a stethoscope pressed firmly to its wall, is heard no rumbling of gases or other evidences of peristaltic activity.

The temperature, although almost always elevated, is a far less reliable guide than the pulse rate, the latter being increased in rapidity to a marked extent, tense and small in character, and this character of the pulse is often an excellent indication as to prognosis, especially when upon each visit the physician finds the pulse more rapid and weaker. The tongue becomes dry and coated, similar to that of a typhoid, and later a mild delirium develops, and about this time as a result of the spreading infection, the system becomes dried out for want of water and the urine diminishes in quantity, frequently containing albumen and casts.

Patients with peritonitis always feel and look ill, and as the infection increases they become restless and anxious. The mind is alert and active even when the disease is far advanced. These patients usually take the dorsal position with knees flexed. Late symptoms, symptoms that might rather be called the precursors of impending death than diagnostic signs of peritonitis, are the facial expression, hollow eyes, dusky skin due to capillary congestion, cold sweating, pinched, drawn face with its lips thin and blue, weak, flickering pulse, cold extremities, collapse, etc.

While we can say in a general way that the early diagnosis of spreading peritonitis rests upon the symptoms, pain, nausea and vomiting, localized but spreading tenderness, abdominal rigidity, absence of borborygmus, increasing leukocytosis, etc., we must nevertheless carefuly note the previous history of each patient with reference to abdominal or digestive disorders, attacks of appendicitis, gall stones, colic or any lesion of any of the hollow viscera contained in the abdominal cavity. In women the gynecic history must be carefully elicited in order that the cases arising from infected tubes or following ruptured ectopic gestation, preceding abortions, or vaginal discharges which may

be gonorrheal in character, may be given due prominence in forming a diagnosis, and furthermore, we must always bear in mind that we may have to do with a diffuse peritonitis due to perforation of bowel in a typhoid where symptoms were so mild that medical aid was not sought for the original trouble.

A means of diagnosis and prognosis too often neglected is the leucocyte count, especially the differential count. In suppurative peritonitis the leucocyte count, is of the greatest value. "The increase in the relative number of polynuclear cells is an indication of the virulence of the infection, and the degree of leucocytosis is an evidence of the body resistance towards the infection."

The infecting organism in peritonitis may be either colon bacillus. Streptococcus, pneumococcus, typhoid bacillus, gonococcus and staphylococcus, pyoganes aureus, the most important and occurring in about the order named; the colon bacillus being by far the most frequent and even where the infection is primarily a mixed one the colon bacillus will rapidly overgrow the other organisms, leaving it the sole possessor of the territory. This has been known to occur in as short a period as twenty-four hours.

The virulence of the colon bacillus seems to depend upon the portion of the intestinal tube which it inhabits; for example, it is least virulent in the duodenum and jejunum and most virulent in the ileum. The colon taking an intermediate station, its virulence is increased greatly in conditions of diarrhoea and in strangulated gut, and likewise its virulence seems to be much lessened according to Dudgeon and Sargent by an association with the staphylococcus albus, for experimentally it has been noted that this latter organism would excite a leucocytosis which would not degenerate in the presence of the colon bacillus, a point to be mentioned later under treatment.

The streptococcus variety is extremely severe and fatal, but fortunately does not occur frequently, and when it is the invading organism it is apt to be in post partum conditions, hence the great mortality with such affections. The reason for its great virulence lies in the fact that it rapidly blisters and sheds the endothelium and becomes a sub-peritoneal infection, a condition in which drainage is of very little avail, and its toxins are elaborated in the underlying tissues where they are rapidly absorbed in a manner analogous to a hypodermic injec-

tion. The various other organisms such as pneumococcus, gonococcus, etc., are of a mild grade of infection and occur quite infrequently as compared to the colon and streptococcic variety.

The location of the initial lesion which is the important factor in producing the infection of the peritoneum, when it is a perforation, is a very significant factor in estimating the result since it helps determine the virulence of the infection, which varies in different portions of the intestine—at the appendicial region bacterial activity is at its height, whereas in duodenal perforations the bacterial activity is much less. Yet while variations of virulence have much to do with the result, they are not more potent than is the patient's resistance to infection, the amount of absorption of toxins, the time that has elapsed since the onset of the disease, the degree and duration of the surgical trauma, and the post operative treatment.

The location of the spreading peritonitis has a distinct bearing upon prognosis. Pelvic infections, unless post partum and of the streptococcic variety, are mild. Those in the diaphragmatic zone are dangerous, for here the absorptive power of the peritoneum is enhanced by the large stomata found in the increased lymphatic supply to this part and made doubly effective by action of the diaphragm during respiration, which by its rhythmatic pump-like action causes aspiration of infectious agencies into the absorbents.

In acute spreading peritonitis, due to perforation, the severity of the disease depends to a great extent upon the size of the perforation; a small perforation permitting a slow escape of material may provoke such a mild degree of trouble that nature will have time to encapsulate the foreign material and stop the spread of the infection, and the patient sometimes recovers even without operation. No doubt this frequently occurs in perforated gastric ulcer and I have personally seen such a case of perforation of the gall bladder with two biliary calculi lying in a pocket outside of the viscus, this latter organ having been perforated some years before.

It is quite the contrary where large perforations exist and great quantities of virulent material are thrown into the peritoneal cavity, certainly rapid surgical intervention only can avail in such cases and yet one such case where the transverse colon was almost severed by a crushing blow was seen by me in con-

sultation with Dr. Austin Fink of Freedom Plains, N. Y.; diagnosis of ruptured intestine, operation thirty hours after the accident, abdominal cavity soiled everywhere with contents of large intestine, and yet after thorough abdominal lavage and suture of wounded intestine, together with the plan of treatment to be suggested later, this patient made an uninterrupted recovery.

*Treatment.*

As septic intoxication is the primary and most frequent cause of death in peritonitis, the prevention of absorption of toxic products is therefore of vital and first importance. During the pre-operative period something can be done to limit absorption and bacterial activity. The patient should be placed in the Fowler position at home the moment diagnosis is made, in order to keep the septic contents of the peritoneal cavity away from its diaphragmatic portion,—some go so far as to say that they should be removed to a hospital and operated upon in this position.

Under *no circumstances* should any laxative medicine be given, for cathartics and laxatives increase peristalsis and peristalsis spreads the infection. Likewise food or nourishment of any character, solid or liquid, should be withheld lest by giving it we increase peristalsis and disseminate the disease. The patient should be kept absolutely quiet in bed, ice water coil or ice bags applied to abdomen and every effort made to limit the spread of the disease, and at the same time lessen the bacterial activity.

At the same time the necessary preparation for operation should be pushed as rapidly as possible, for in timely operation lies the safety of these patients. I quote from Dr. Murphy (Transactions of American Association of Obstetricians and Gynecologists, 1906): "Time is a precious element in treating these cases. If we have a patient with a suppurating wound and the pus is retained under the dressings for one day we may not have an eczema; but if it be retained under the dressings for two or three days there will be an eczema, until finally the whole surface is excoriated. That is just what takes place in the peritoneum and it is the keynote of the situation. If a patient comes into the hospital moribund, merely opening the abdomen will kill him, because the man is practically dead upon admission. He has received his fatal dose of toxins into

his circulation. Just as if it were a fatal dose of atropin or strychnia from his stomach, and is going to die whether we drain his abdomen or wash out the stomach. What we should do is to prevent him from getting that fatal dose of sepsis into his blood and we can do it by an early operation judiciously performed."

In operating upon these patients we must conserve their vital forces in every available way. All skin preparation should be attended to prior to the administration of the anesthetic, a hypodermoclysis of 1,000 cubic centimetres of normal saline should be started just prior to operation and, if the demands of the case require it, an ounce of brandy can be added to this transfusion. The patient should be well protected and a heated operating table used, or in lieu of that hot water bottles applied during the course of the operation, and everything needed for operation should be ready before the anesthetic is administered, for there is no class of abdominal operations where speed coupled with scientific aptness is of greater importance than these. Slow operations mean death from shock. Imperfect operations mean death from a continuance of the acute inflammation. Experienced and careful etherization is necessary, not a drop more ether should be used than is consistent with proper narcosis, for we have a patient poisoned with toxins and we must not add to it an ether and carbonic acid poisoning.

Here is a class of cases where the services of a professional anesthetizer, one who is constantly administering anesthetics, is invaluable, as he knows best how to place a patient under ether with the minimum amount of the anaesthetic.

Many of these cases can be operated upon with local anaesthesia and with decided advantage to the patient. Incision should be over the seat of the original disease when we are cognizant of what the disease was, otherwise the incision should be median, below the umbilicus.

Immediately upon opening the peritoneum the fluid should be noticed in order to obtain from it some guide as to what organ is affected primarily; for example, if the duodenum is perforated the fluid it Bile stained, if there are flakes of food perforated gastric ulcer can be suspected, a strong fecal odor would point to appendiceal or intestinal rupture. The search within the abdomen should be purposeful and done with great care, the character of the different coils of intestine noted, the condition

of the appendix and especial attention paid to any region where any thick localized deposit of lymph is found. This, in a majority of cases will lead to the source of offence, for the peritoneum is prone to respond to injury by an outpouring of lymph and fluids.

Now, having found the cause of the peritonitis, remove it. If it be a perforated appendix, remove it; a wound of some portion of the intestinal tube, suture it; a diseased Fallopian tube, remove it: in fact, repair or remove, according to the condition, the organ that is responsible for the infection. Only in exceptional cases, should we fail to follow this rule.

By the operation we have afforded relief to the pus tension and that is the first surgical step toward retarding absorption in all acute infections, and the maintenance of this low pressure or lack of tension is a requisite to continued freedom from absorption. Reduction of tension must be initial and absence of pressure continuous. (Murphy.) This latter must be accomplished by proper drainage. Irrigation of the abdominal cavity at one time so popular, now seems to be relegated to those exceptionally foul cases where fecal contents or stinking pus seems to demand it; otherwise it is unjustifiable. First, because by so doing we are apt to spread the infection to areas as yet uninfected; second, shed blood (serum) as found in peritonitis, even though loaded with dead as well as living phagocytes and bacteria, is bactericidal to an extent not adequately known but far in excess of that of blood contained in the vessels. Third, much time is lost by thus doing what experience has proven unnecessary and the life of the patient depends upon rapid completion of operation. Fourth, by proctolysis and hypodermoclycis we have a reversed washing of the peritoneal cavity which contains no elements of harm and is thorough and efficient in its operation. Multiple small extra incisions should now be made, each one just large enough to admit a good sized rubber drainage tube and these incisions should be so placed as to enable one to get proper drainage.

It is impossible to drain the whole peritoneal cavity through a single opening. The difficulty is to drain it properly through several openings. (Moynihan.) One drain should go to the bottom of the pelvic cavity, one to the appendix stump if the trouble has been in the appendix, and the other drains to the

kidney pockets or iliac fosse, depending upon the requirements of the case. Only the original incision should be closed and that not entirely; all others have been made only large enough to admit the drainage tube.

Fenestrated, split, large rubber—the German mottled rubber tubing is best—is the only form permissible. Glass tubes cause pressure necrosis and kinks that have produced serious results. Gauze should be used only to wall off areas where necrosis is imminent or has occurred, and then only in conjunction with rubber tubes. The so-called "cigarette drain" ceases to drain in a few hours and becomes a menace. How it ever became so popular is beyond my understanding.

When by reason of the foul character of the contents of the peritoneal cavity, or in case there has been fecal extravasation, it becomes necessary to flush the cavity, normal saline solution at a temperature of 105-110 should be used through a return flow Chamberlain tube and every pocket and recess carefully and systematically washed out prior to the placing of the drains.

A further point to be considered in desperate cases when distention and paralysis of the gut exists, is the emptying of the distended bowel by enterotomy or enterostomy. There is no question but that an evacuation in many cases of the stagnant fecal and gas accumulation is a decided advantage, but although strongly recommended by such men as Moynihan, Kocher and the late Andrew McCosh, I nevertheless would consider it a procedure which should be relegated to a very severe grade of cases and those where intestinal paralysis, distention and stercoraceous vomiting are prominent symptoms. In all less severe cases the added trauma and shock incident to this procedure should prohibit its performance.

The wounds are now dressed with a liberal amount of fluffed gauze with scultetus bandage applied just tight enough to retain the dressing. If applied too tightly it lessens the ability of the gauze to absorb from the drains. Stomach lavage is practiced before the patient leaves the table and from one to three times daily thereafter until convalescence is established, thereby removing from the stomach a vast amount of toxic material which otherwise might be absorbed, and also relieving the gaseous distention and overcoming the further tendency to vomit. It is amazing what a salutary effect is obtained in these cases from systematic lavage of the stomach.

Adrenalin and strychnine, hypodermically injected, the latter in large doses, are the most valuable stimulants and are repeated at regular intervals until there is no further need for them. The patient is placed in a heated bed and always in the Fowler position, this being obtained by removing the castors and placing a suitable apparatus under the head of the bed which elevates it about eighteen inches, thereby placing the patient in a semi-sitting position. This position is maintained by a pillow under the thighs and a strong bandage around the pillow and tied to the head of the bed. The advantage of this position is best understood when we consider that the peritoneal infection produces a lymphangitis and this in turn a formation of lymph thrombi, and consequent obliteration of lymph channels. In localities where lymph channels are large, as in the upper or diaphragmatic portion of the peritoneal cavity, absorption occurs before these lymph channels can become obliterated, hence the system may become overwhelmed with poison.

In the smaller lymph channels which exist in the pelvic peritoneum the obliterating process takes place with comparative rapidity and the safety of the patient is much enhanced when by reason of this position in bed the fluids are compelled by gravity to seek the pelvic basin where an obliteration of the absorbents has or will soon take place. We can readily understand the value of this position especially if we continually bear in mind that the chief danger lies in the absorption of the toxic products and not the inflammation per se.

All food and nourishment should be withheld from these patients for a period of time depending upon the severity of the case; the more severe the case, the longer period of abstinence from nourishment is required. It is not only useless but absolutely harmful to place food in a stomach which is several times each day filling with regurgitated material from the intestines. Furthermore, food, and drink as well, unless it be hot water, excites peristalsis, and peristalsis should be prevented, for the bowels should be kept quiet and at rest and the need for nourishment and water is overcome by hypodermoclycis or better yet, proctoclycis.

You will recall that I said we gave a subcutaneous transfusion of 1,000 cubic centimetres of normal saline while the operation was in progress. Now by repeating this process frequently, say from two to four times daily, we can overcome thirst,

overcome the necessity for food for varying lengths of time, wash out the blood and cause an elimination through the kidneys and drainage tracts of toxic products which have been absorbed, for by this method we have a reversed washing out of the peritoneal cavity and it is amazing to note how a patient treated in this way will soil dressings and continue drainage for days that otherwise would have ceased after about twelve hours.

Saline solution in large quantities given subcutaneously means food, drink, stimulation and the elimination of toxins to these patients and coupled with the other above described features of the treatment means the saving of many. It is needless to remark that the procedure should be carried out under strict aseptic rules.

Valuable as the subcutaneous administration of saline solution is, however, it has remained for Dr. John B. Murphy to improve upon it and give us a means of administering saline by rectum in vastly larger quantities than ever could be given under the skin, and thereby facilitate its usefulness.

Proctolysis, or the Murphy method, consists of the slow and continuous administration of saline solution per rectum, and with this method the rectum with its great absorptive power will take up and pass into the blood anywhere from ten to twenty pints of the solution daily—a marvelous statement, but one that is borne out in practice.

Opium and any of its derivatives should be given only to the smallest degree compatible with the comfort of the patient, for while they retard peristalsis, thus acting as an aid to our efforts, they add to the intestinal retention and the toxic absorption, already sufficiently great, has added to it the retention of poisons in the intestine which may be quite sufficient to turn the tide against the patient.

Where the bowels have not been adequately cleansed prior to operation an effort is made to have them moved upon the second or third day, and usually a high enema is adequate, if not then calomel one-tenth grain every quarter of an hour until one grain is taken, followed by a saline and later an enema. No injudicious purging should be done after the operation, and absolutely none whatever prior to operation. Prior to operation it disseminates by increased peristalsis the infection to areas as yet uninfected, and post operative it should be prac-

ticed just sufficiently to overcome the existing stagnation of intestinal contents. Other than this the intestines should be kept at rest. When excessive tympany exists and the above line of treatment does not afford relief the use of salicylate of eserine one-sixtieth to one-fortieth grain every two to three hours will often be a valuable aid.

Early diagnosis with consequent lessened area of infection and lessened absorption of toxins, coupled with a line of surgical treatment which has for its main purpose the relief of pus tension, proper drainage coupled with a posture which keeps the infection away from dangerous areas, avoidance of shock by proper anaesthetization and a minimum amount of handling of intestines, preserving the normal resistance of the patient, and last but not least, blood washing by proctoclysis or hypodermaclysis, are the measures that have made it possible to restore to health and strength a great majority of these cases formerly considered hopeless.

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# MY PERSONAL EXPERIENCE WITH GASTRO-ENTEROSTOMY.

*Read before the Medical Society of the County of Albany, February 24, 1909.*


BY EDGAR A. VANDER VEER, M. D.,

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The introduction, trial and judgment of different operations is nowhere better illustrated than in that of gastro-enterostomy. Fifteen years ago the operation of gastro-intestinal anastomosis was considered one of the greatest of surgical feats, only attempted in the most desperate cases, and frequently with fatal results. However, as the technique became perfected, its scope was broadened, until within a few years there is scarcely an organic disease of the stomach in which it is not claimed that it can be relieved or cured by this surgical procedure. At the present time it would seem as though

greater experience would indicate that its sphere of usefulness will be greatly lessened. The pendulum has swung back and its proper place in surgical technique is being reached.

The subject of gastro-enterostomy in itself has been talked and written about to such an extent that it would seem to me to be our duty to consider one side of the question which is coming into prominence—the after results and just how much good the patient has derived.

In the beginning, this operation was looked upon with much interest and the patient watched with the greatest care and attention. The mere fact that the stomach could be operated upon and the patient live was thought remarkable; that an anastomosis could be made between the stomach and small intestine, and the patient after the operation have scarcely any rise of temperature or pulse, be out of bed at the end of ten days to two weeks, and leave the hospital at the end of three weeks, was equally impressive.

The accumulated results soon led the surgeon to think it was possible to cure every disease of the stomach by means of an operation, especially a gastro-enterostomy, and while on the whole the final outcome has been good, it has only been so in certain classes of cases.

At first, the unsatisfactory results might have been blamed to defective technique. This step, however, has improved, until now, by means of a shorter duodenal loop and an anastomosis to the posterior wall of the stomach, we have an almost perfect operation. Yet, as I have said before, the permanent results are not good, except in certain classes of cases.

At the Chicago meeting of the American Medical Association, Dr. N. B. Leggett, of New York, in discussing a paper on this subject published in the "Transactions of Anatomy and Surgery of the Association" for this year, reported a series of experiments in which he had performed gastro-intestinal anastomosis upon dogs, and then by means of certain instruments had fed them lead balls to which strings were attached, then killing the dogs and examining them he found that in every case in which the pylorus was allowed to remain open the bullet almost invariably passed through the pylorus and not through the artificial opening.

Of the twenty-two cases on which I have operated in the

last five years, three have died in the hospital, and I have been able to follow the other nineteen more or less accurately. They might be classified as follows:

Ulcer of the stomach or duodenum, 13.

Carcinoma of the pylorus, 3.

Dilatation of the stomach, not due to a stenosis of the pylorus, 3.

Stenosis of the pylorus, benign in character (by which I mean, a stenosis due to healed ulcer or benign tumor closing the outlet of the pylorus), 3.

Two deaths occurring in the hospital were cases of ulcer of the stomach, one dying from secondary hemorrhage from the ulcer in forty-eight hours after the operation. An autopsy revealed that the site of the anastomosis was clean and there had been no hemorrhage from that source. The second patient died at the end of three weeks from exhaustion. A most unfortunate class of cases for operation.

Right here is a point which I would like to bring out, and that is the lack of co-operation between the physician and the surgeon. I believe that in both of these cases, if they could have been reached earlier, before they had become so debilitated from their pain and exhaustion, they might have recovered. However, the physician is too prone to treat his cases medically and allow them to progress too far before consulting the surgeon. On the other hand, the surgeon sometimes, possibly, is prone to operate too early. But surely, when medical means have been given a fair trial and have failed, surgery should have a chance, and not be adopted as a last resort.

Of the eleven remaining cases of ulcer all have recovered with no unfavorable results, leaving the hospital from three to four weeks after the operation. Six of them have been permanently benefited, the benefit now extending from one to three years. Three had little benefit and two subsequently died. Unfortunately, upon the two that died no autopsies were held and so exact cause of death could not be determined. But in one case, from the history of the symptoms, I have reason to believe that carcinoma subsequently developed and the patient would not allow any further operative interference. The second case apparently died from a tubercular peritonitis, and of the three cases that derived but little benefit, two have

dropped out of my sight; and the other was one in which, when I operated, I found a large number of adhesions about the pyloric end of the stomach, at the site of a chronic ulcer. The patient did well for three or four months, when he returned to the hospital complaining of pain, not in the site of the old trouble but more in the median line, where the anastomosis had been performed. I did a second operation and found the adhesions had extended about the site of the anastomosis. These were broken up and the parts replaced in as normal position as possible. The patient again did well for three or four months, when the symptoms returned the same as before. This patient certainly was benefited by the operation, and it would undoubtedly have been a success had it been possible to prevent the formation of adhesions, a factor which we have not yet been able to thoroughly eliminate.

The operation in the cases of carcinoma were merely palliative in character. All recovered from the immediate effects of the surgical procedure and were free from distress for the remainder of their lives, as well as being a comfort to their families, one living six months, the other two twelve and eighteen months, respectively.

This brings up the point of an early exploratory incision in cases of suspected malignancy of the stomach. An exploratory incision in itself is so simple in character, and the results sometimes so far reaching, that it should be done in all suspected cases.

Of course, the ideal operation in carcinoma of the stomach is a resection of the parts involved, provided the disease has not progressed beyond the walls of the organs. But if the lymphatic glands of these parts have already become infiltrated little benefit can be gained. And here is where the conservative operation of gastro-enterostomy is of most service.

What a relief to the patient to be eased of all his symptoms (the nausea, the pain, etc,) for at least a few months, even though the disease is progressing; for by allowing food to pass through the new opening, and not over the carcinomatous mass, thus irritating it, the progress of the disease seems to be retarded very materially.

Of the cases of simple dilatation, one died in the hospital ten days after the operation, having insufficient vitality to overcome the shock. Of the other two, both seemed to be

benefited for a while, but then developed conditions almost similar to those prior to the operation. In these two cases, I believe the untoward results were due, possibly, to a defect in my technique, the anastomosis having been made at the seemingly lowest point of the stomach, but apparently the site being at the lowest point did not allow for the complete drainage as was anticipated.

In the three cases of stenosis of the pylorus, non-malignant in character, most excellent results were obtained, each making a good recovery, remaining well since. And I might be pardoned for quoting the histories of two of these cases.

The first was that of a man, aged sixty-four, who up to three years previous enjoyed the best of health. He was a veteran of the Civil War, and had always indulged in the good things of life. Three years before he noticed that immediately following the ingestion of food he had distress, with a fullness in the region of the stomach. Occasionally he would vomit, the vomitus containing the meal which he had just eaten and a portion of the previous one. These conditions gradually grew worse, until for two years all he had been able to live upon was milk and eggs. This diet eventually failed him and he was rapidly emaciating, dropping from one hundred and forty pounds to ninety pounds.

Upon physical examination no growth could be palpated in the epigastrium, but there was a marked thickening at the pylorus.

Taking into consideration the age of the man and the history of the case, though it had extended over quite a period, a diagnosis of carcinoma of the pyloric end of the stomach was made, and a gastro-enterostomy, merely as a palliative measure, was advised.

At the operation the condition was found to be a stenosis of the pylorus, due to a chronic ulcer which almost closed the calibre of the outlet. A posterior gastro-enterostomy was performed in the usual manner, and the patient has never vomited since the operation.

He left the hospital at the end of four weeks, and six weeks after the operation he partook of a Thanksgiving dinner of ten courses, to some of which he was helped twice; and not being satisfied with that, went home and had a night-cap of beer and cheese, without the least discomfort. He has regained his normal weight, can eat anything he wishes, without the least return of the stomach conditions, and has remained well for over eighteen months.

The second of these cases, a young man of twenty-five, had been treated for two years for a chronic ulcer, and had gradually grown weaker. In his case a partial stenosis of the pylorus was found. The usual posterior gastro-enterostomy was performed. He made an excellent recovery and within three months gained thirty pounds in weight, weighing more now than ever before.

The history of the third case is much the same, except that the patient has not gained quite so much in weight, but still has no discomfort.

In this class of cases I think the benefits of gastro-enterostomy are most emphatically shown, and that it has a permanent place in surgery.

In reviewing the histories of the cases, I believe we get the best results in those cases of stenosis of the pylorus non-malignant in character. In them we are almost sure to obtain relief. In cases of carcinoma we do not perform the operation with the hope of permanent results, but it gives the patients a deal of relief.

When we come to the cases of ulcer of the pyloric end of the stomach, or of the duodenum, the percentages of return of symptoms after the operation are fairly numerous; so that I believe before the operation is advised the case should be carefully studied and all medical means exhausted before we undertake the surgical intervention, provided we feel sure there is no malignancy present.

The etiology and pathology of ulcer of the stomach or of the duodenum are not as yet thoroughly worked out; and here is the opportunity for the internist and the surgeon to combine and help each other. As a matter of fact, I believe most surgeons are prone to operate upon all cases of ulcer, when in a number of them medical treatment not only is of more benefit but will actually cure, since very frequently the cases operated upon have a return of the symptoms within three or four months' time.

In cases of simple dilatation where the operation is performed for drainage, it seems to be the least beneficial, because the natural outlet for the food is through the pylorus, and nature will have her way in spite of all we can do. Here, therefore, I believe that gastro- enterostomy should have most careful thought. In cases of stenosis of the pylorus, the operation of gastro-enterostomy is surely indicated.

# SPINAL ANESTHESIA.

*Read before the Medical Society of the County of Albany, February 24, 1909.*

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The search for new methods of producing anesthesia has brought forward in recent years, not only new agents for that purpose, but also new ways of using old ones. Among these new methods, the most important and most promising of good results is spinal anesthesia. This method of producing anesthesia, because of adverse reports regarding its reliability and safety, found little encouragement until Bier and Tuffier made favorable reports of their experience in 1899. Since then with the improved technique and proper selection of drugs and their doses, excellent results have been obtained by many surgeons, and there is now little doubt but that the method has come to stay, and will prove itself one of our strongest allies in the field of surgery. With many of the leading surgeons abroad, it has already become the method of choice in operations below the diaphragm, and it is finding greater favor daily with our American surgeons. The simplicity of the technique and the ease with which it may be executed should serve to commend it.

## Technique

As used by various surgeons, the technique differs only in unimportant detail. The object being to produce nerve blocking by bringing a solution of the anesthetizing agent in contact with a sufficient number of nerve roots to completely anesthetize the field of operation. A more extensive distribution of the drug is undesirable as it encourages more rapid absorption.

My procedure is as follows: The patient receives the usual preliminary preparation as for general anesthesia; the injection is made with the patient preferably in a sitting position, leaning forward so as to convex the lumbar region. The needle carrying an obturator (Bier's model) is introduced between the fourth and fifth lumbar vertebrae, at a point about one and five-tenths centimeters below and to the right of the spinous process of the fourth lumbar vertebra, thus

avoiding, not only the bony process, but the strong supraspinous ligament and thicker portion of the ligamentum subflavum. The needle is carried almost directly forward with a slight upward and inward slant. The peculiar sensation of lessened resistance transmitted to the hand as the needle enters the subarachnoid space is very characteristic. The obturator is now withdrawn, and from one to three cubic centimeters of fluid allowed to flow. The syringe of two cubic centimeters capacity containing the warm anesthetizing solution is now attached and the piston withdrawn until the syringe is filled. The diluted solution is now injected with moderate rapidity, the needle withdrawn, the skin puncture sealed, and the patient quickly placed in a dorsal position.

If the incision is to be made above the pelvic brim, the hips are elevated about six inches, and this posture maintained for ten minutes. The high Trendelenberg is not necessary to obtain abdominal anesthesia. It may be used in efforts to extend the anesthesia to the chest.

## Phenomena of Anesthesia

Anesthesia of the perineal region is invariably the first to appear, and is complete within three minutes, the immediate anal region being frequently anethelized within one minute.

The lower extremeties and abdomen next becoming rapidly insensible to pain, the anesthesia usually extending to about the level of the seventh rib. Anesthesia is complete within from ten to twelve minutes. The tactil sense and power of motion may persist throughout the period of analgesia. Nausea and vomiting, if present, usually occurs between the fifth and the fifteenth minute.

Strong traction on the mesentery, spermatic cord or parietal peritoneum may give discomfort and produce nausea.

## Drugs Used

In choosing the drug for anesthesia, it is desirable to select one that will give the best anesthesia with the least by-effects, be non-irritating, and be capable of sterilization without deterioration. The drugs most frequently used are, cocaine, tropa cocaine, and a synthetic preparation called stovaine. Recently Oelsner has reported encouraging results from experiments with ice-cold salt solution.

Magnesium sulphate after the formula of Humbold and Meltzer is also used, but the prostration associated with its use is frequently severe, the anesthesia is very slow in appearing, and not infrequently fails to appear at all.

Robert H. M. Dawbarn of New York informs me that he is using one-half of Humbold and Meltzer's dosage for the purpose of preventing shock by blocking nerve paths to the vasotonic centre in the brain. This shock blocking, he states, is effective even when anesthesia does not appear.

Bier regards cocaine the most dangerous, and tropa cocaine the safest. He favors the latter or stovaine combined with suprarenin. Morton of San Francisco has used tropa cocaine successfully more than one thousand times. Matas is partial to stovaine.

I have had no experience with tropa cocaine, but cocaine gives a more prolonged anesthesia than stovaine, but it also produces by-effects more frequently, and is considered generally more dangerous.

Stovaine has the added advantage that it can be boiled without injuring its anesthetizing properties. However, trustworthy sterile solution of cocaine in one cubic centimeter sealed glass containers can be had in the market.

Considering the duration of anesthesia, cocaine is likely to prove more satisfactory in operations consuming more than an hour and a quarter.

The dose of cocaine need not exceed one-half grain. Stovaine and tropa cocaine are used in doses from three-quarter grain to one and one-half grains.

## Review of Literature

In a brief review of the literature for 1908, I have collected reports on over 4,000 safe applications of spinal anesthesia. Of these, Bier reports his last 400 cases, all of which were successful. Vomiting occurred in five per cent., and headache in six per cent. In all his experience he has met with but two fatal results, one from an overdose of cocaine, and one from heart failure after the usual dose.

Ellenbrock reports sixty-three operations under spinal anesthesia on patients in whom general anesthesia was contra indicated. He had one mishap due to meningitis.

Oelsner reports 875 operations with one death, not due to

the anesthetic. Anesthesia failed to appear fifty-four times. Three times abducens paralysis occurred. He has found on record thirty-two cases of paralysis, none of which however, was permanent.

Renton reports fifty consecutive operations done with great satisfaction. He had two failures to puncture and insufficient analgesia in three. He had no bad after effects.

Sabadini reports 679 operations with cocaine or stovaine in patients ranging in age from fifteen to ninety-three. He considers it free from danger. His operations represented every degree of severity. Failure for satisfactory anesthesia amounted to eleven per cent.

Morton's experience with over 1,000 patients has been satisfactory. He claims that with one and one-half grains of tropa cocaine and high Trendelenberg even the scalp may be rendered analgesic.

Munchmeyer reports on 1,189 patients with one death not proven due to the anesthetic. He considers the method of great value where general anesthesia is contra indicated.

Barker of London has had 100 successful trials with stovaine.

Hardouin used stovaine successfully nine times. The tenth patient, a man who had suffered from strangulated hernia twenty hours, died from bulbar intoxication. He has found in the literature, record of fifteen deaths from spinal anesthesia. Six of these patients were suffering from acute intestinal obstruction operated on late in the course of the disease.

## Personal Experience

My personal experience with spinal anesthesia is limited to eighty-eight operations, classed as follows:

| | |
|---|---|
| Abdominal | 36 |
| Genito Urinary | 27 |
| Rectal | 18 |
| Miscellaneous | 7 |

The ages of the patients varied from eighteen to sixty-four years. In these, stovaine was used forty-three times, and cocaine forty-five times. The dose of stovaine was one and one-half grains to one grain, of cocaine three-quarters grain in twenty-five patients, and one-half grain in twenty. Of the

forty-three receiving stovaine, vomiting occurred five times, headache three times. Of the twenty-five patients receiving three-quarters grain cocaine, eight vomited and three had headache. Of the twenty receiving one-half grain cocaine, three vomited and two had headache. Vomiting was more than twice as frequent in patients receiving three-quarters grain than in those receiving one-half grain. Headache was about equal in the two series, occurring three times in the three-quarters grain series, and twice in the one-half grain series, with five more patients in the former. This would appear to make headache less dependent than vomiting upon the size of the dose.

The anesthesia was incomplete three times with stovaine, and once with cocaine, but in none was it necessary to give a general anesthetic to complete the operation. There was one failure to obtain anesthesia. This was in hernia patient who was given three-quarters grain cocaine. This patient vomited a few minutes after the injection and had post operative headache. The longest duration of anesthesia in the one-half grain cocaine series was three hours, the shortest one hour and fifty minutes. With stovaine the longest period of anesthesia was two hours and the shortest forty-five minutes.

The post operative headache so frequently urged as a drawback of the method was present eight times, but persisted only in one patient who suffered for ten days, especially when the head was raised from the pillow. Acting on the supposition that low blood tension was responsible for the condition, adrenalin was administered hypodermatically in ten minimum doses of a one-one thousandths solution. After three doses given four hours apart, the headache permanently disappeared. The succeeding seven patients with headache were treated in a like manner within a few hours after the pain appeared, and the same happy result was obtained. Only twice was the second dose required.

Only four of the eighty-eight patients left the table with higher pulse rate than before the operation. Not one, even those receiving the unusually large dose of three-quarters grain of cocaine, exhibited any signs of collapse.

## Advantages of Spinal Anesthesia

As to the advantages possessed by spinal over general anesthesia, it has been noted that the depressing effects of rather

prolonged intra-abdominal operation appears far less marked than under general anesthesia. Bier states that extensive pelvic operations, especially those for cancer, done under general anesthesia, leave the patients in a serious state of depression, while those done under spinal anesthesia produce practically no ill effects at all. He considers general anesthesia to be productive of more extensive evil eeffects than now recognized.

Oelsner, Hollander and others have remarked on the influence of spinal anesthesia in relieving and preventing atony of the bowels after operations for incarcerated hernia and appendicitis. I have noticed this action twice in my series. Once in a strangulated hernia, and again in a five-day-old appendicitis with abscess. In both repeated enemas had failed to unload the bowels. While still on the operating table, each of the patients had a free involuntary movement of the bowels. In addition, the dangers and discomforts of the "coming out of ether" stage are avoided, and the patients are invariably more comfortable, being spared the distressing thirst, nausea and pain in the back so common after ether. When no special contra indication exists, I give the patient a moderate amount of water, if desired, during the progress of the operation.

The retention of consciousness during the operation, while perhaps not desirable under some circumstances, is frequently of advantage, especially in hernia and rectal operations, when it may be desirable to have the patient cough or bear down.

Seven of my patients had previously experienced general anesthesia, and they were unanimous in their decision in favor of the spinal method.

As to the special indications for spinal anesthesia, I quote those accepted by the Anesthesia Commission of the American Medical Association: (1) in drunkards, (2) in marked cases of nephritis with accompanying heart lesions, (3) in diabetic subjects, (4) in marked bronchitis, emphysema associated with heart lesions and artero sclerosis, (5) in hernias and operations on the prostate and rectum where it may be desirable to have the patient cough or bear down during the operation.

# TUBERCULOSIS OF THE BREAST.

*Read before the Medical Society of the County of Saratoga, at Ballston Spa. N. Y., March 30, 1909.*

By FREDERIC J. RESSEGUIE, M. D.,
*Saratoga Springs, N. Y.*

Tuberculosis of the breast is an uncommon disease, but in the female not so rare as was formerly supposed. The case which I report occurred in a male, and while not of such practical importance as tuberculosis of the female breast, is of sufficient rarity to justify reporting it.

Cornil and Ranvier (quoted by Ferguson, *Jour. Am. Med. Assoc.*, 1898) stated that "examples of tubercles in the breast are unknown," although Cornil has since contributed to the subject. Another author (Warren-Gould, *Internat. Text-book Surgery*) states the disease is very rare, and the literature on the subject scant. They quote the work of Roux, who collected thirty-four cases, of which but two occurred in the male. Both breasts were affected in two cases, and the ages varied from sixteen to fifty-two years. In but ten of the cases was the disease primary. They also quote Mandry's collection of forty cases with but one in the male breast, to emphasize the important rôle of the functionating breast as a predisposing cause. This is of much importance, not only to the mother, but the danger of infecting the infant through the medium of the milk, several cases having been reported.

In Fowler's Surgery, 1906, we find also that "Tuberculosis of the mamma is very rare. But a single case in which the diagnosis was established has been reported (Poirrier)." This statement, however, hardly bears out the facts as we find them. Bloodgood (Kelly and Noble Gynecol. and Abdom. Surg., 1908) found tuberculous mastitis occurring in 6 per cent. of benign lesions admitted to Johns Hopkins Hospital. Warden (*Medical Record*, Oct. 1, 1908) reports fifty-eight cases from the literature that he considers authentic, and nearly 90 per cent. of these cases occurred in females.

The first male case appears to have been reported in 1851 by Heyfelder (*Deutsche Klinik*, 1851) the case a man of twenty-six years. It was forty years later in 1892, before Delbert (quoted by Schley, *Annals of Surgery*, 1903) reported the second male case, and I have been unable to find a reported case occurring

in the male breast since this date. This may be due to the lack of a comprehensive search, the paucity of the literature, or both.

The case which I wish to report is that of Mr. E., aged forty, a native of Italy, and a laborer. He had been in the United States but nine months and was unable to speak but few words of English, which fact I shall offer as an apology for the somewhat incomplete history.

The family history could not be obtained. He was a well-nourished man, had always enjoyed good health, and had worked regularly up to the day before entering the Saratoga Hospital.

About three months ago he noticed a "lump" near the right nipple. It was somewhat painful at times, though never severe, and it was slightly sensitive to the touch. The tumor had increased gradually in size, and presented at that time about the size of a horse-chestnut in the lower and inner quadrant of the right breast. It was freely movable in all directions, and was not adherent to the skin. There was no retraction of the nipple, nor was there any evident enlargement of the axillary or supraclavicular glands of either side. No history of traumatism could be obtained. Temperature and respirations were normal, pulse, 78. Bowels regular, appetite good, and has not lost weight. The heart and lungs were normal, as were the abdominal organs. Urine was amber in color, acid, 1022, no albumen or sugar.

Operation February 6, 1903, at Saratoga Hospital. Incision over tumor, which was found without surrounding capsule, greyish in color, and infiltrating surrounding tissues, particularly the aponeurosis and fibres of the pectoralis major, and to a lesser extent the pectoralis minor, the greater part of which were removed. There was no palpable enlargement of the axillary glands present, and the axilla was not entered.

Wound closed with small drain in dependent portion for forty-eight hours; dressed seven days later; primary union. The subsequent history I cannot give, as I have been unable to trace the case since leaving the hospital.

The specimen was sent to the Bender Laboratory at Albany for examination, and the following report was received:

"I am of the opinion that the lesion is not in the nature of a new growth at all. The lesions which are present are of an inflammatory nature. The tissue is made up of epithelioid and lymphoid cells, which are infiltrating fat and connective tissue. Scattered among these cells are areas of necrosis, around which

the epithelioid cells are generally arranged. I consider the lesion present as a diffuse form of tuberculosis, and presume therefore that it will not return, at any rate at the original seat. Sincerely yours, GEORGE BLUMER."

It is perhaps to be regretted that no search was made for the tubercle bacilli, although there can be but little doubt of the diagnosis from the microscopical examination. On the other hand, the frequency in which the tubercle bacilli is not found either in the tissues or secretions has been generally remarked. Thus Scudder (*Amer. Jour. Med. Sci.*, 1898) in a report of eighty cases, found they were demonstrated in but twenty-nine—a little more than one-third. Other observers have failed to find them in over one hundred sections (Schley). The employment of the tuberculin test would also have been an aid in establishing the diagnosis, had the tuberculous character of the lesion occurred to me.

Tuberculosis runs the same course in the breast as it does in other soft structures of the body. The changes in the tissues do not deviate from the tubercular granulomata and gross lesions of the usual type. The same nodules, the similar infiltration, the cheesy degeneration and its liquefaction, the formation of sinuses which become chronic, the same tendency to lymphatic extension and general tubercular infection, and the low form of chronic inflammation, identify tuberculosis of the mamma with tuberculosis elsewhere. (Ferguson, *Jour. Am. Med. Assoc.*, 1898.)

The infection is said to occur in one of four ways: (a) direct infection through the milk ducts; (b) through the medium of the blood current; (c) through the lymphatics; (d) by direct extension from a focus situated in one of the contiguous structures (Frieberg, *Jour. Am. Med. Assoc.*, 1898). It must be evident that the source of infection in many cases is problematical. Thus in my case the possibility of the infection through the nipple or milk ducts, for obvious reasons need not be considered; it seems unlikely also that it could have occurred through the medium of the lymphatics as there was no enlargement of the axillary glands; there were no discoverable foci of the disease in the contiguous structures or lungs, so the only known source remaining is through the blood current; and this, as has been pointed out by Freiberg is hard to prove. In any event, it would seem that this was a case of primary tuberculosis of the male breast.

In 1836 Bedor (Osler, *Prac. of Med.*) described an hypertrophy of the breast in the subjects of pulmonary tuberculosis. As a rule if one gland is involved, usually on the side of the affected lung, the condition is one of chronic interstitial mammitis, and is not tuberculous. It would be interesting to know in the light of our present knowledge of the sources of infection, if some of these cases were not really a secondary tubercular infection.

Tuberculosis of the male breast presents at first as a nodule of rather firm consistence, freely movable, and situated usually in the upper and outward quadrant. It may be painful, while in some cases pain is entirely absent until a concomitant inflammatory condition ensues. Pain may also be complained of in the arm of the affected side. The growth may remain small for weeks, months, or even years (Scudder's case, five years), when caseation and softening occur with suppuration and the formation of one or several sinuses, the main characteristic of which seems to be its great tendency to persist. The axillary glands may or may not be involved, and when they are may either be due to tuberculosis or a simple hyperplasia. The disease often advances much more rapidly in the axillary glands than the breast, and a small focus in the breast may be entirely overlooked, the axillary condition appearing as the primary disease. The supra-clavicular glands may also be involved. Temperature is slightly if any affected, and the appetite continues good. In fact the good general health that usually accompanies the condition has been frequently alluded to. The skin over the tumor has been reported as changed in appearance and discolored, but this seems to be uncommon. There is frequently retraction of the nipple, although this more often appears after the formation of sinuses.

In the earlier stages of tuberculosis of the breast, the diagnosis cannot be made from the "feel" or macroscopical appearance, particularly where other evidences of tubercular infection such as enlarged glands are absent. In the more advanced cases, however, after "cold-abscess" formation or the presence of sinuses with little tendency toward healing, the diagnosis presents few difficulties. In the majority of the cases in the female reported, the diagnosis was not made before operation. The mere fact of finding a benign tumor in the breast of a patient affected with tuberculosis, or the occurrence of mastitis in such a subject, does not by any means settle the diagnosis.

Strictly speaking primary tuberculosis of the breast could not properly be made without autopsy; although if there is no evidence of other foci after a painstaking examination, the lesion should be considered primary.

Piskacek (quoted by Anspach, *Am. Jour. Med. Sci.*, 1904) states that if in a given case symptoms exist which may be attributed to tuberculosis in another part, then the disease of the breast cannot be regarded as primary, although the breast may have been its primary seat.

The conditions that tuberculosis of the breast may be mistaken for are carcinoma, sarcoma, cysts, fibroadenomata, chronic interstitial mastitis, gummata, and actinomycosis. To clear up all doubt the specimen after removal should be examined microscopically, the tubercle bacilli sought for, and animal inoculations made. Where softening has occurred preliminary aspiration and examination of material for tubercle bacilli has been successfully done (Freiberg's case).

The treatment is surgical, and consists in the removal of the affected gland and pectoral muscles, and cleaning out the axilla if the glands are appreciably enlarged. It should be borne in mind that the disease sometimes extends beyond the point that it can be appreciated by the eye, a fact which emphasizes the danger of an incomplete operation.

# Editorial

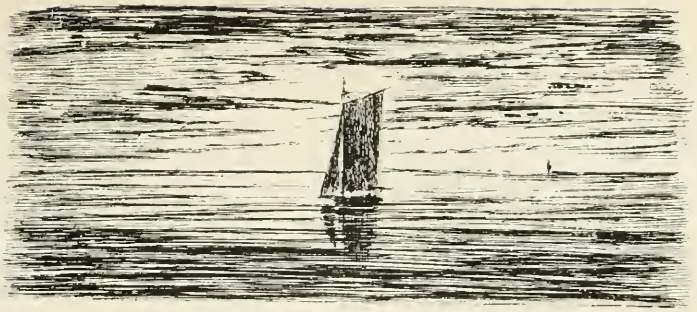
> "Ye-es," replied the surgeon, with the thoughtful pleasure of an artist contemplating the work upon his easel. "Yes, it's enough. There's a compound fracture above the knee, and a dislocation below. They are both of a beautiful kind." He gave the patient a friendly clap on the shoulder again, as if he really felt that he was a very good fellow indeed, and worthy of all commendation for having broken his leg in a manner interesting to science.
>
> *Little Dorrit* CHARLES DICKENS

**Lewis Balch**

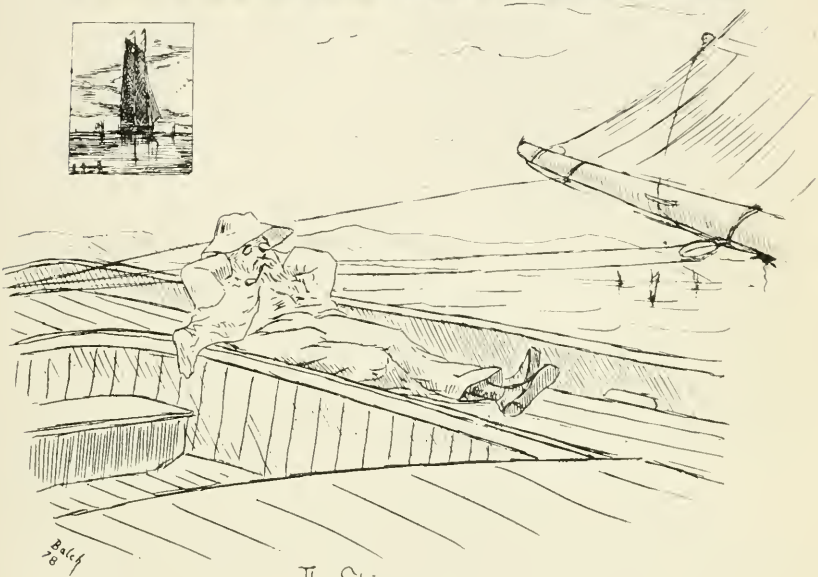
The death of Lewis Balch closes a chapter in the history of the Albany Medical College, a chapter strongly significant, not only of the career of the college itself, but of the course and changes of medical education. The college was founded in 1839, by a corps of professors whose activity and unity of purpose established a firm foundation and a record which has long outlived them. Their energies lasted thirty years, yielding only to the inevitable inroads of time. With their departure came an interval of uncertainty, and from 1870 to 1876 there were many changes in the faculty with provisional appointments and indefinite purpose. In 1876 the college was reorganized and the able professors then appointed brought to their work the personal interest and loyalty bred of residence in the city and pride in its institutions which has continued to the present day. Among these men Balch was conspicuous, and he was one of the sixteen whose names appeared upon the list of 1876. Of them nine have passed away: Thomas Hun, dean, *emeritus;* Vander Poel, austere, polished and exact; Mosher, industrious, versatile and resourceful; Swinburne, the virile, pugnacious surgeon; Gray, the aggressive alienist; the scientific Edward R. Hun; Perkins, affable and companionable; and Webster, philosophical and ironical; each representing some phase of individuality which stood for strength and character. It was the day of the didactic lecture, and students learned the methods and mannerisms of teachers in the college walls, and were awed by the "theories" of medicine; gaining what they could of practical knowledge in the long vacations with accom-

LEWIS BALCH, M. D.

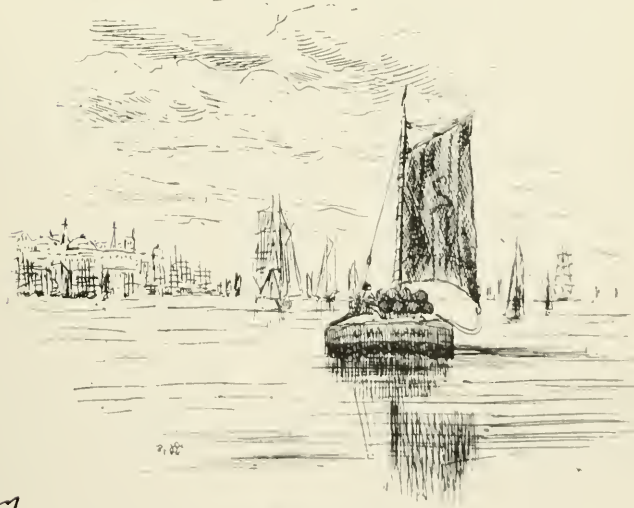
*Albany Medical Annals*
*September, 1909*








The Skipper



Artist proof, L. Balch Mar 1878

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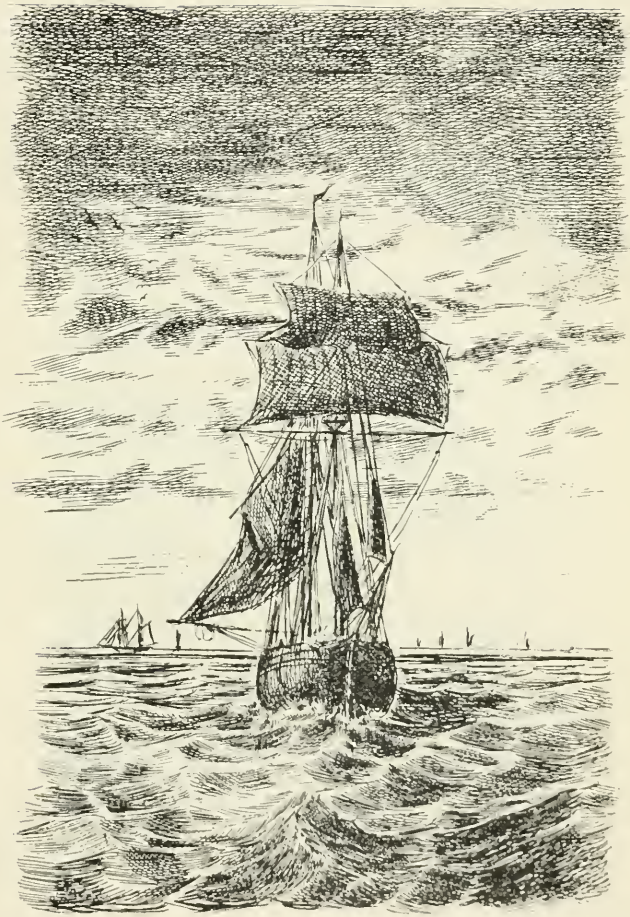
modating preceptors. Now all is changed. The faculty proper directs the affairs of the college, but the work of the bedside, the operating room, and the laboratory is largely conducted by the younger instructors, in whom lies the bulk of teaching. The ornate lecture which brought into view the striking personality of the professor no longer holds the stage; in its place is the quiet persistent technical application which teaches the pupil to observe and deduce for himself. To offer to the student of to-day a didactic lecture on anatomy would strain his credulity. And yet, in Professor Balch's time, not only was the lecture the centre of anatomical teaching, but, in scarcity of dissecting material, it was not infrequently without demonstration. That is, there would have been no demonstration had not Balch himself been gifted with an unexcelled genius for drawing, by which he was enabled to illustrate most graphically his severely material topic. All now living who sat on the benches in those active days will recall with gratification, and regret that that clever hand is quieted forever, the free-hand sketches upon the blackboard, in which, with marvelous dexterity, muscle, nerve, blood-vessel, in appropriate color, accompanied the oral description, until the completed member presented itself in accurate outline. Nor was this gift limited to crayon sketches. There now remain a few studies in light and shade copper-plate etching as memorials of his true artistic touch, among them a series of caricatures illustrating a summer boating excursion taken by himself, Dr. Jacob S. Mosher ("The Skipper") and another, whose identity is now uncertain.

As a surgeon Dr. Balch was energetic and, as sometimes happens, picturesque. He enjoyed the display of his gifts. He was ready and quick with either tongue or hand, and was sought in medico-legal work. One of his famous cases was the Billings murder trial, in which, contested by his colleague, Mosher, and associated with the keenest legal talent, there developed court room strategy and display of wit which attracted wide notice. The proceedings were caricatured in one of the comic weeklies, and the medical testimony was ludicrously paraphrased.

As health officer of the City of Albany, Dr. Balch was highly esteemed. A gentleman active in municipal affairs has said of him, that he needed some curbing, as his purposes were not always politically judicious, but he was a most efficient administrator. From this office he was selected to be the Secretary of the State

Board of Health. He was an enthusiastic militiaman, and found an outlet for his military propensities in the Spanish-American War. His appointment to the volunteer service in 1898 closed his work in Albany. Since then Albany has seen him but little. He leaves many friends here who will mourn his untimely death, who will regret the necessities of his departure from the chosen scenes of the labor of his earlier days, and who will remember his genius, his scorn of intrigue, his sincerity, his affability and his sense of true and enduring friendship.

Lewis Balch was born in New York City, July 7, 1847. His father, the Rev. Lewis P. W. Balch, D. D., was a native of Virginia, and a man of distinction in the Episcopal Church, both of this country and of Canada. He was at one time Canon of Christ Church Cathedral, Montreal, and also Archdeacon of London, Canada; and served for fifteen years as Secretary of the House of Bishops of the United States. His wife, the mother of Dr. Lewis Balch, was Anna Jay, sister of John Jay. After a classical course at the Maryland Institute, Baltimore, and subsequently another at the Episcopal Institute, Vermont, Dr. Balch began to fit himself for the medical profession in McGill University, Montreal, and afterward, removing to New York, finished his professional studies in the College of Physicians and Surgeons, from which he was graduated in 1870. Immediately after receiving his degree, he obtained the appointment of Assistant Surgeon to the Thirty-seventh Regiment, New York National Guard, which was soon consolidated with the Seventy-first Regiment, Dr. Balch serving with the new organization in the same capacity, with the rank of Captain. He was promoted to Surgeon of the regiment and remained in this service till his removal from New York, retiring with the rank of Major. During this time he was also engaged in the duties of resident physician of the Brooklyn Hospital, being occupied there one year. He also acted from 1872 to 1873 as one of the attending surgeons to the Northern Dispensary. In 1873 he removed to Albany, and in 1874 was appointed attending surgeon to St. Peter's Hospital and to the Albany Hospital, and in 1875 received similar appointments to the Child's Hospital and to the Day Nursery and Children's Home. In 1876 he was elected Professor of Anatomy in the Albany Medical College. At the outbreak of the Spanish-American War, Dr. Balch went to Florida as Surgeon of the Second Regiment, New York Volunteers. Later he went to Cuba and then to the Philippines. While in service in the Philippines he was attacked by fever and nearly lost his life. He returned to the United States and regained his health. In 1900 he had charge of the sanitary improvements at Colon, Panama. Two years later he returned to New York and practiced his profession. His last illness dated from the spring of the present year, and he died at New York, on August 9, 1909. He is survived by his widow, Mrs. Jane Swan Balch, and a son, Lewis Balch, both of whom live in Wakefield, R. I.



Louis Balch
Mar. 1878

BOOK PLATE DESIGNED BY LEWIS BALCH

# Public Health

Edited by Joseph D. Craig, M. D.

DEPARTMENT OF HEALTH—ALBANY, N. Y.

ABSTRACT OF VITAL STATISTICS, JULY, 1909.

*Deaths.*

| | 1905 | 1906 | 1907 | 1908 | 1909 |
|---|---|---|---|---|---|
| Consumption | 14 | 22 | 11 | 20 | 17 |
| Typhoid fever | 1 | 3 | 2 | 0 | 1 |
| Scarlet fever | 0 | 0 | 0 | 0 | 0 |
| Measles | 0 | 0 | 0 | 0 | 0 |
| Whooping-cough | 1 | 2 | 3 | 0 | 0 |
| Diphtheria and croup | 0 | 2 | 4 | 5 | 1 |
| Grippe | 0 | 0 | 0 | 0 | 0 |
| Pneumonia | 0 | 2 | 3 | 2 | 2 |
| Broncho-pneumonia | 2 | 1 | 0 | 0 | 2 |
| Bright's disease | 19 | 11 | 16 | 15 | 11 |
| Apoplexy | 12 | 11 | 8 | 5 | 6 |
| Cancer | 9 | 8 | 6 | 13 | 12 |
| Accidents and violence | 11 | 11 | 14 | 6 | 7 |
| Deaths over seventy years | 29 | 24 | 35 | 35 | 24 |
| Deaths under one year | 29 | 27 | 28 | 22 | 23 |
| Total deaths | 156 | 149 | 172 | 135 | 146 |
| Death rate | 18.36 | 17.53 | 20.24 | 15.88 | 16.18 |
| Death rate less non-residents | 16.59 | 16.12 | 17.88 | 14.83 | 14.59 |

*Deaths in Institutions.*

| | 1905 | | 1906 | | 1907 | | 1908 | | 1909 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Resident | Non-resident | Resident | Non-resident | Resident | Non-resident | Resident | Non-resident | Resident | Non-resident |
| Albany Hospital | 9 | 9 | 15 | 5 | 14 | 10 | 9 | 7 | 8 | 5 |
| Albany Orphan Asylum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| County House | 3 | 0 | 0 | 2 | 2 | 1 | 4 | 1 | 1 | 2 |
| Little Sisters of the Poor | 0 | 0 | 0 | 0 | 2 | 0 | 3 | 0 | 0 | 0 |
| Homeopathic Hospital | 0 | 0 | 1 | 1 | 3 | 0 | 3 | 1 | 2 | 1 |
| Hospital for Incurables | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Home for the Friendless | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| Public places | 0 | 0 | 0 | 1 | 0 | 4 | 4 | 0 | 0 | 0 |
| Sacred Heart Convent | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| St. Francis de Sayles Orphan Asylum | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| St. Margaret's House | 6 | 2 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 2 |
| St. Peter's Hospital | 2 | 3 | 3 | 3 | 7 | 3 | 3 | 3 | 9 | 5 |
| Home for Aged Men | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 |
| Maternity Hospital | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |

## Bureau of Plumbing, Drainage and Ventilation.

In the Bureau of Plumbing, Drainage and Ventilation there were two hundred and forty inspections made of which one hundred and eighteen were of old houses and one hundred and twenty-two of new houses. There were one hundred iron drains laid, fifty-five connections to street sewers, fifty-five tile drains, six urinals, eighty-seven cesspools, one hundred and thirty-two wash basins, one hundred and fifty-eight sinks, one hundred and thirty-five bath tubs, one hundred forty-three wash trays, one trap hopper, two hundred and thirteen tank closets. There were one hundred and twenty-six permits issued of which ninety-five were for plumbing and thirty-one for building purposes. Sixty-three plans were submitted of which twenty were of old buildings and forty-three of new buildings. There were four houses tested, two with blue or red and two with peppermint and there were fifty-one water tests. Twenty-four houses were examined on complaint and forty-two were re-examined. Twelve complaints were found to be valid and twelve without cause.

## Bureau of Contagious Diseases.

*Cases Reported.*

| | 1905 | 1906 | 1907 | 1908 | 1909 |
|---|---|---|---|---|---|
| Typhoid fever | 8 | 5 | 8 | 7 | 1 |
| Scarlet fever | 0 | 4 | 2 | 13 | 4 |
| Diphtheria and croup | 6 | 29 | 44 | 27 | 15 |
| Chickenpox | 0 | 4 | 1 | 1 | 0 |
| Measles | 4 | 10 | 11 | 1 | 7 |
| Whooping-cough | 0 | 7 | 0 | 0 | 0 |
| Consumption | 2 | 2 | 11 | 42 | 26 |
| Totals | 20 | 61 | 77 | 91 | 53 |

*Contagious Diseases in Relation to Public Schools.*

None reported.

Number of days quarantine for diphtheria:
Longest..... 30 Shortest..... 6 Average..... 12 3/11
Number of days quarantine for scarlet fever:
Longest..... 55 Shortest..... 18 Average..... 36 1/5
Fumigations:
Houses..... 26 Rooms..... 134
Cases of diphtheria reported..... 15
Cases of diphtheria in which antitoxin was used..... 15
Cases in which antitoxin was not used..... 0
Deaths after use of antitoxin..... 0

### Bender Report on Tuberculosis.

| | |
|---|---|
| Positive | 15 |
| Negative | 15 |
| Failed | 0 |
| Total | 30 |

### Tuberculosis.

| | | | |
|---|---|---|---|
| Living cases on record July 1, 1909 | | | 376 |
| Reported during July, 1909: | | | |
| By telephone | 0 | | |
| By Bender | 8 | | |
| By card | 7 | | |
| | | 15 | |
| Dead cases reported by certificate | | 12 | |
| | | | 27 |
| | | | 403 |
| Dead cases previously reported | | 6 | |
| Dead cases not previously reported | | 12 | |
| Duplicates | | 2 | |
| | | | 20 |
| Living cases on record August 1, 1909 | | | 383 |

### Total Tuberculosis Death Certificates Filed.

| | |
|---|---|
| July, 1909 | 17 |

### Bureau of Pathology.

*Bender Laboratory Report on Diphtheria.*

| | 1905 | 1906 | 1907 | 1908 | 1909 |
|---|---|---|---|---|---|
| Initial positive | 4 | 20 | 28 | 22 | 35 |
| Initial negative | 16 | 15 | 12 | 20 | 14 |
| Release positive | 5 | 3 | 25 | 22 | 9 |
| Release negative | 4 | 88 | 96 | 60 | 28 |
| Failed | .. | 31 | 5 | .. | 5 |
| Totals | 29 | 157 | 166 | 124 | 91 |

Examination for tuberculosis:

| | | | |
|---|---|---|---|
| Initial positive | 1 | 11 | 14 |
| Initial negative | 2 | 6 | 15 |

BUREAU OF MARKETS.

| | |
|---|---|
| Market re-inspections | 156 |
| Public market inspections | 22 |
| Fish markets inspected | 12 |

MISCELLANEOUS.

| | |
|---|---|
| Mercantile certificates issued to children | 12 |
| Factory certificates issued to children | 24 |
| Children's birth records on file | 36 |
| Number of written complaints of nuisances | 42 |
| Privy vaults | 12 |
| Plumbing | 10 |
| Other miscellaneous complaints | 20 |
| Total number of dead animals removed | 1,101 |
| Cases assigned to health physicians | 87 |
| Calls made | 213 |

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# Medical News

**Edited by Arthur J. Bedell, M. D.**

THE ALBANY GUILD FOR THE CARE OF THE SICK—DEPARTMENT OF VISITING NURSING—STATISTICS FOR JUNE, 1909. Number of new cases, 124; *classified as follows:* Dispensary patients receiving home care, 20; district cases reported by health physicians, 4; charity cases reported by other physicians, 38; moderate income patients, 62; old cases still under treatment, 85; total number of cases under nursing care during month, 209. *Classification of diseases for the new cases:* Medical, 40; surgical, 11; gynecological, 0; obstetrical under professional care, mothers, 32; infants, 31; dental, 0; eye and ear, 0; skin, 1; throat and nose, 1; infectious diseases in the medical list, 11; removed to hospital, 10; deaths, 7.

*Special Obstetrical Department*—Number of obstetricians in charge of cases, 1; medical students in attendance, 1; Guild nurses in attendance, 5; patients, 4; visits by attending obstetrician, 9; visits by students, 13; visits by nurses, 43; total number of visits for this department, 65.

*Visits of Guild Nurses* (all departments): Number of visits with nursing treatment, 1,206; for professional supervision of convalescents, 259; total number of visits, 1,465; cases reported to the Guild by one health physician and thirty-two other physicians; graduate nurses, seven, and pupil nurses, 7.

*Nurses' Work at the South End Dispensary*—Number of new patients treated, 412; number of old patients treated, 125; total, 537; number clinics held, 87; *divided as follows:* medical, 12 clinics with 75 patients; children's, 11 clinics with 82 patients; dental, 1 clinic with 5 patients;

stomach, 4 clinics with 5 patients; surgical, 13 clinics with 73 patients; gynecological, 8 clinics with 32 patients; nose and throat, 8 clinics with 37 patients; skin and G. U., 8 clinics with 47 patients; eye and ear, 9 clinics with 83 patients; lung, 13 clinics with 126 patients; nervous, 3 clinics with 4 patients.

THE ALBANY GUILD FOR THE CARE OF THE SICK—DEPARTMENT OF VISITING NURSING—STATISTICS FOR JULY, 1909. Number of new cases, 171; *classified as follows:* Dispensary patients receiving home care, 38; district cases reported by health physicians, 7; charity cases reported by other physicians, 56; moderate income patients, 70; old cases still under treatment, 98; total number of cases under nursing care, 269. *Classification of diseases for the new cases:* Medical, 71; surgical, 15; gynecological, 0; obstetrical under professional care, mothers, 43; infants, 39; dental, 0; eye and ear, 1; skin, 2; throat and nose, 0; infectious diseases in the medical list, 11; removed to hospital, 13; deaths, 8.

*Visits of Guild Nurses* (all departments): Number of visits with nursing treatment, 1,505; for professional supervisions of convalescents, 252; total number of visits, 1,757; cases reported to the Guild by three health physicians and forty-three other physicians; graduate nurses, six, and pupil nurses, 6, on duty.

*Nurses' Work at the South End Dispensary*—Number clinics attended, 90; number new patients, 177; number old patients, 509. *Classification of clinics held:* Surgical, 10; nose and throat, 7; lung, 11; skin and G. U., 8; nervous, 4; stomach, 4; dental, 0; medical, 13; children, 14; eye and ear, 9; gynecological, 8.

BENEFITS OF A TUBERCULOSIS SANATORIUM—PROPERTY INCREASED IN VALUE, AND HEALTH CONDITIONS BETTERED BY IT.—On account of the present agitation concerning the possible danger and detriment of locating a tuberculosis sanatorium or camp near an inhabited dwelling or valuable property, the National Association for the Study and Prevention of Tuberculosis issues a statement to-day, which shows that in the great majority of cases such an institution has a beneficial effect, not only upon the sale of property, but also upon the health of the community.

In a recent investigation conducted by the National Association, 37 institutions in 22 different States in all parts of the country were considered. According to information received from sanatorium superintendents, real estate dealers, and various disinterested parties, 67.5 per cent. of these tuberculosis sanatoria have had a favorable influence upon surrounding property, and have been a benefit to the community in which they were located.

In the case of 23, or 62.2 per cent. of the institutions, the presence of the sanatorium helped to increase the assessed valuation of surrounding property. In only one instance has property decreased in value, and there it was due to ignorance of the facts. In 22 out of the 37 cases, the presence of a sanatorium has even been helpful in the recent sale of land, and in only four places has any detrimental effect on sales been shown. In 51.3 per cent. of the cases, residents have been attracted

to the community by the sanatorium, and in only three localities have residents been repelled.

Some examples show the increase in the value of surrounding property. In the vicinity of a sanatorium in Portland, Oregon, land has more than doubled in value in three years, and is in demand close to the sanatorium. At Aiken, S. C., property in the neighborhood of the local sanatorium has increased 400 per cent. since the institution was built. At Hebron, Maine, surrounding property has increased 20 per cent. as a direct result of the presence of a tuberculosis sanatorium. A similar effect upon land values has taken place in other towns, such as Luzerne, Pa.; Liberty, N. Y.; Saranac Lake, N. Y.; Pittsford, Vt.; Mt. Vernon, Mo., and Silver City, N. M. At Asheville, N. C., vacant lots near one of the sanatoria in that city, sell at four times their price in 1900, and those farther from the institution but nearer the city are less valuable. Not a single instance was reported where the presence of a tuberculosis sanatorium, camp, or dispensary in a large city has had a detrimental effect on the value of surrounding property.

The Courts of Massachusetts, North Carolina and Virginia have decided that a tuberculosis sanatorium is not a menace to the health of a community, and that it does not decrease the value of land in its immediate neighborhood.

The presence of a tuberculosis sanatorium has been a benefit also to the farmers in its vicinity from the fact it affords a market for their produce, and gives more work to the unemployed. The merchants, too, have testified that the sanatorium is a stimulus and help to trade.

The tuberculosis sanatorium has been of value to the community in the raising of health standards. In almost every city or town where such an institution has been opened, public spitting has decreased, more windows have been opened, and greater cleanliness in life has resulted.

For these reasons, the National Association for the Study and Prevention of Tuberculosis declares that instead of being a menace, a tuberculosis sanatorium may be regarded as a benefit to any community in which it is located, whether city or country.

Albany College of Pharmacy, *Department of Pharmacy, Union University.*—The catalogue of 1908-09 and the announcement of the session of 1909-10 has recently appeared as a neat pamphlet of thirty pages, reviewing the work of the past year and outlining the courses to be given in the next session, which begins October 4th. The following constitute the faculty: Charles Alexander Richmond, D. D., Willis Gaylord Tucker, M. D., Ph.D. Dean, Alfred Birch Huested, M. D., Ph.G., Gustavus Michaelis, Ph.G., Theodore James Bradley, B. S., Ph.G., Garret Vander Veer Dillenback, Ph.G., Edward Cunningham Hutman, Ph.G., William Atwood Larkin, Ph.G., Spencer Lyman Dawes, M. D., Jared Waterbury Scudder, A. M.

The State Department of Health has just issued a revised form of birth certificate, which conforms to the recommendations of the United States Census Bureau, and on which are printed questions as to the use

of prophylaxis against ophthalmia of the new born. All births reported should be entered on the revised form.

Suppression of Tuberculosis.—Early in June, 1909, Poughkeepsie opened a day camp where consumptives in the various stages of the disease may go for rest, sunshine, fresh air and good food and be under general medical supervision. It is a large camp, situated on city property on an elevated plateau that admits of excellent drainage and is open to all the breezes that blow, yet is removed from the noise and dust of the city. The equipment consists of one nurse's tent, Ray Brook pattern, five tents, 14 x 14 feet, and eleven tents 9 x 9 feet, a dining-room 14 x 20 feet, and a kitchen 14 x 20 feet joined by a passage way 10 x 10 feet, which affords closet room and storeroom. In the rear is the laundry 14 x 20 feet. These buildings as well as the three recreation pavilions located at convenient and shady positions, are permanent wooden structures. There are also two bath houses furnished with appliances for shower and tub baths. The tents with the exception of the nurse's tent, are made of kakhi, 12 oz. army duck and each is furnished with a fly over the tent and another projecting in front affording shelter and shade. In front of all is a board walk and another board walk leads to the dining-room and adjacent buildings. The water supply and electric lights are a part of the city service. A telephone adds to the convenience of the administration. The staff consists of two nurses, one cook and helper, one laundress and a nightwatchman. The camp was constructed and equipped at a cost of about $5,000 by the citizens of Poughkeepsie; the management is under the direct control of the Board of Health.

Newburgh, N. Y., Will Have a Tuberculosis Hospital for the accommodation of twenty-five patients. The site for which has been recently donated by ex-Governor B. B. Odell, Jr.

Labor Unions May Build Hospitals is the opinion expressed by State Commissioner of Health, Dr. E. H. Porter, and as a result the Brooklyn Central Labor Union will build a tuberculosis sanatorium on Long Island. It is intended to erect a two-story building at a cost of $50,000, the building is to contain one hundred single rooms for patients, arranged along balconies extended around the central administration building. The structure will be of wood with concrete exterior and hardwood lining, and will in all respects be modern and up-to-date.

The Board of Supervisors of Rensselaer County has appropriated $25,000 for the erection of a tuberculosis hospital.

The United States Civil Service Commission announces an examination on September 8, 1909, to secure eligibles from which to make certification to fill two vacancies in the position of physician (male) in the Indian Service at Nett Lake, Minnesota, and Volcan, California, at $1,000 per annum, and other similar vacancies as they may occur in the Indian Service, unless it shall be decided in the interests of the service to fill the vacancy by reinstatement, transfer, or promotion.

The examination will consist of the subjects mentioned below, weighted as indicated:

| *Subjects.* | *Weights.* |
|---|---|
| 1. Letter-writing (the subject-matter on a topic relative to the practice of medicine) | 5 |
| 2. Anatomy and physiology (general questions on anatomy and physiology, and histologic or minute anatomy) | 10 |
| 3. Chemistry, materia medica, and therapeutics (elementary questions in inorganic and organic chemistry; the physiologic action and therapeutic uses and doses of drugs) | 15 |
| 4. Surgery and surgical pathology (general surgery, surgical diagnosis; the pathology of surgical disease) | 20 |
| 5. General pathology and practice (the symptomatology, etiology, diagnosis, pathology, and treatment of diseases) | 25 |
| 6. Bacteriology and hygiene (bacteriologic methods, especially those relating to diagnosis; the application of hygienic methods of prophylaxis and treatment) | 10 |
| 7. Obstetrics and gynecology (the general practice of obstetrics; diseases of women, their pathology, diagnosis, symptoms, and treatment, medical and surgical) | 15 |
| Total | 100 |

Seven hours will be allowed for this examination.

Age limit, 25 to 55 years on the date of the examination.

Men only will be admitted to this examination.

In accordance with a recent act of Congress an applicant for this examination will be required to be examined in the State or Territory in which he resides and to show in his application that he has been actually domiciled in such State or Territory for at least one year previous to the examination.

This examination is open to all citizens of the United States who comply with the requirements.

This announcement contains all information which is communicated to applicants regarding the scope of the examination, the vacancy or vacancies to be filled, and the qualifications required.

Applicants should at once apply either to the United States Civil Service Commission, Washington, D. C., or to the secretary of the board of examiners at any place mentioned in the list printed hereon, for application Form 1312. No application will be accepted unless properly executed, including medical certificate, and filed with the Commission at Washington. In applying for this examination the exact title as given at the head of this announcement should be used in the application.

As examination papers are shipped direct from the Commission to the places of examination, it is necessary that applications be received in ample time to arrange for the examination desired at the place indicated by the applicant. The Commission will therefore arrange to examine any applicant whose application is received in time to permit of the shipment of the necessary papers.

PERSONALS.—Dr. H. D. PEASE, at present lecturer on antitoxins and immunity at the college, and director of the State Bacteriological Laboratory at Albany, has resigned to accept a position as director of the Lederle's Laboratories, New York City.

—Dr. JOHN WILLARD TRAVELL (A. M. C., '97) has removed from Troy, N. Y., and is now practicing at 27 E. 11th street, New York City.

—Dr. FRED A. DEAL (A. M. C., '99) is now located at 562 W. 148th street, New York City.

—Dr. GERALD GRIFFIN (A. M. C., '01) has moved from 140 Washington avenue to 176 Washington avenue, Albany, N. Y.

—Dr. EDWIN BARNES WILSON (A. M. C., '05) is now located at 80 Fenimore street, Brooklyn, N. Y. Dr. Wilson has recently been appointed attending surgeon of the Coney Island Hospital.

—Dr. ROY C. KEIGHER (A. M. C., '07) after one year at the Albany Hospital, and one year at the Bender Laboratory is now located at 358 Summit avenue, Schenectady, N. Y.

—Dr. HERBERT E. SPERRY (A. M. C., '08) has left the Samaritan Hospital, Troy, N. Y., and opened his office at 686 Earl avenue, Rochester, N. Y.

—Dr. FREDERICK E. VAUGHAN (A. M. C., '09) is one of the assistant physicians at the Hudson River State Hospital, Poughkeepsie, N. Y.

MARRIED.—Dr. J. HOWARD BRANAN (A. M. C., '02) and Miss Josephine Condon were married August 4, 1909, at Albany, N. Y. Dr. and Mrs. Brannan will be home after September 1st, at 133 Second street, Albany, N. Y.

—Dr. T. FREDERICK DOESCHER (A. M. C., '06) and Miss Emma Pendell were married June 22, 1909, at Albany, N. Y. Dr. and Mrs. Doescher will reside at 349 Madison avenue, Albany, N. Y.

—Dr. HARRY W. CAREY and Miss Florence E. Dresser were married in Spencer, N. Y., June 30, 1909.

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DEATHS.—Dr. CLAIR S. PARKHILL (A. M. C., '66) died at his home in Hornell, N. Y., July 21, 1909, aged 67.

—Dr. LYMAN BULKLEY (A. M. C., '74) of Richmond Hill, N. Y., died at his old home in Sandy Creek, N. Y., July 9, 1909, aged 75.

—Dr. SAMUEL HALL MORRIS (A. M. C., '81) died at his home in Rochester, N. Y., June 30, 1909, aged 76.

—Dr. LEWIS BALCH, for several years connected with the college, died in New York City, August 9. 1909.

# In Memoriam

## Charles I. Conover, M. D.

Dr. Charles I. Conover, one of the most widely known medical practitioners in Montgomery County, having for many years covered a large territory in the southern parts of the county as well as in the contiguous territory of Schoharie County, died Sunday afternoon, August 8, 1909, at 1:30 o'clock at his home at Charleston Four Corners, after an illness of about three weeks. Dr. Conover's malady not only baffled his own skill but that of several physicians who were called to diagnose the case, the real trouble being discovered only after death, through a post mortem examination. The patient surmised he had some malignant growth and suffered intensely from an abdominal trouble, which others thought to be acute gastritis. At the request of the family a post mortem examination was made, resulting in finding an obstruction of the bowels had been occasioned by adhesion and the determination that had an operation been performed some days ago the patient's life might have been saved.

Dr. Conover, who was fifty-seven years of age, was born in the town of Glen, the son of Mr. and Mrs. Jacob Conover. He was graduated from Whitestown Seminary and the Albany Medical College, receiving his diploma March 10, 1878, after which he was for a time connected with Bellevue Hospital in New York. For about thirty years he has been located at Charleston Four Corners, where he built up a country practice that covered a wide range and in which he was notably successful. He kept abreast of the times in his profession and was considered one of the most successful physicians in the country. Of genial disposition his always cheerful face and words brought hope and encouragement to the hundreds of families to which he ministered and his departure will prove one of the most severe blows that death has occasioned in many years in the region in which he was so widely known. Whole souled, kindly and courteous, the loss of Dr. Conover comes as a blow that will be sorely felt wherever he was known.

When a young man, Dr. Conover married Miss Roba S. Kling and of this union one son survives, Otho W. Conover. He also leaves as his widow his second wife, who was Miss Annie Spencer of Charleston, together with one sister, Mrs. John Perrine of Rural Grove.

Dr. Conover took an active interest in all that pertained to the best interests in the section in which he lived. Something like fifteen years ago he established a general mercantile store at Charleston Four Corners, which has since been conducted chiefly by his son. While originally a Democrat, he later affiliated himself with the Prohibition party and in one or two campaigns has been that party's nominee for coroner. He was a member of the Independent Order of Red Men of Charleston.—*Amsterdam Recorder-Democrat.*

# Current Medical Literature

## SURGERY

**Edited by Albert Vander Veer, M. D. and Arthur W. Elting, M. D.**

*The Mobile Cecum as a Cause of Many Cases of So-Called Chronic Appendicitis.* (*Das Coecum mobile als Urache mancher Falle von sogenannter chronischer Appendicitis.*)

WILMS. *Deutsche medizinische Wochenschrift, No.* 41, *October,* 1908.

The writer states that it is his belief that in many cases of so-called chronic appendicitis the cause of the pain is not in the appendix but is due to the pulling of a long and mobile cecum upon its mesentery or upon the mesentery of the appendix. He states that about 25 per cent. of the cases of appendicitis which consult a surgeon are classified as chronic and are cases which have never had a severe attack, but complain of more or less intermittent painful sensations in the right lower quadrant of the abdomen. These pains are increased by marked constipation and sometimes they radiate to the back, the sacrum and thigh. The region of McBurney's point is usually sensitive. Some of these cases when operated upon show a macroscopically normal appendix, but the cecum is found to be delivered very easily from the abdomen and to be extremely mobile. Miscroscopical examination may show some slight evidences of chronic inflammation, but certain of these patients are not relieved of their pain by the operation and it is evident that there has been some other cause for the discomfort. The same tenderness in the region of McBurney's point is also sometimes found after removal of the appendix. One can frequently determine the presence of a long, movable cecum on clinical examination, when it can sometimes be palpated and a very marked gurgling felt in it. The length of the cecum varies greatly. The writer regards only those as elongated cecums in which the whole cecum can easily be brought out through the wound. The writer has demonstrated that fixation of the cecum in these cases has given relief from the symptoms, whereas in certain control cases of the same kind in which he has removed only the appendix the symptoms have in some instances persisted. He has, furthermore, opened abdomens from which the appendix had previously been removed without relief of the discomfort, and fixed the movable cecum, and thus relieved all of the symptoms.

The operation is simple, and is no more dangerous than an ordinary appendectomy. He always removes the appendix at the same time. In some cases of chronic appendicitis the pain is evidently due to an abnormally shortened mesentery of the appendix, so that when the cecum becomes filled traction on this mesentery causes pain. The removal, of course, of such appendices removes the symptoms. Furthermore, the position of the appendix is often responsible for the symptoms of chronic appendicitis, especially the so-called subserous location of the appendix, in which every change in size and position of the cecum is apt to produce more or less of a pull upon the appendix and its mesentery and thus produce pain.

The writer emphasizes the great difficulty of differential diagnosis between chronic appendicitis and chronic disturbance of the tube and ovary on the right side. He also emphasizes the importance of the elongated cecum as a cause of chronic constipation, and has cured this condition by the fixation of such a cecum. He states that frequently a movable cecum is encountered by which no symptoms have been produced, but he also emphasizes the fact that the same is true of a movable kidney; and if it gives rise to no symptoms there is no occasion, of course, for any operation.

His method of operation is to loosen a portion of the parietal peritoneum in the right iliac fossa, thus forming a pocket in which the cecum is held, thus giving it broad and permanent fixation.

Pain in the region of McBurney's point as often seen in cases of chronic appendicitis or movable cecum the writer believes is a form of neuritis due to a pulling of the retroperitoneal nerves.

In conclusion, he believes, first, that an elongated movable cecum is the real cause of the sensitiveness in the region of McBurney's point in many cases of so-called chronic appendicitis; secondly, that the pains are caused by a pulling and stretching of the nerves in the mesentery of the cecum and of the appendix; thirdly, a certain number of cases in which the appendix is quite movable with the cecum are not cured by appendectomy, but are cured by a fixation of the cecum by the induction of broad adhesions. The writer's results are based upon forty cases so treated.

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*What Results Have the Surgeon's Knife Accomplished in the Treatment of Cholelithiasis? (Welche Erfolge hat bisher das Messer des Chirurgen bei der Behandlung der Cholelithiasis erzeilt?)*

HANS KEHR. *Münchner medizinsche Wochenschrift, No.* 40, *October,* 1908. 55, *Jahrgang.*

The writer presents a tabulation of 1,309 gallstone operations which he has performed. These are divided into five groups:

Group 1, of 295 conservative operations, cystostomy, cystendysis and cystotomy, with 6 deaths. Mortality, 2 per cent.

Group 2, 303 excisions of the gall bladder, with 11 deaths. Mortality, 3.6 per cent.

Group 3, 293 choledochotomies or drainages of the hepaticus, with 12 deaths. Mortality, 4 per cent.

Group 4, 224 operations complicated with benign disturbance of the stomach, intestine, liver and pancreas, with 36 deaths. Mortality of 16 per cent.

Group 5, 194 operations complicated with malignant disease of the liver, gall bladder, common duct, or septic or diffuse purulent cholangitis, with 160 deaths. Mortality, 82 per cent.

Total, 1,309 laparotomies, with 225 deaths. Mortality, 17.1 per cent. Excluding groups 4 and 5, 891 operations with 29 deaths, a mortality of 2.3 per cent. In his fatal cases he has included all who have died during

the period immediately subsequent to the operation, whether death had any relation to the operation or not. In a considerable number of his cases, as indicated by the statistics, he has found complications in the region of the pylorus or in the stomach, and associated operations have had to be done. In a certain number of cases the diagnosis of gallstones has been incorrect and some disease of the neighboring viscera has been the cause of the symptoms. He states that it is his custom to always remove the appendix in his operations for gallstones, if there is any evidence of disease of the appendix, and even when it is normal if it readily presents in the wound. The relative frequency of associated infection of the gall bladder and the appendix is emphasized.

As causes of death in his operations for gallstones, one per cent of the cases was due to peritonitis, 2 per cent. to pneumonia and embolism and the other causes of death had to do with the disturbance of the circulatory or respiratory organs, or cachexias resulting from long-existing disease. In his operations which were confined entirely to the bile passages, and uncomplicated by other conditions, in 35 per cent. there was stone present in either the common or hepatic ducts. That is, in 66 per cent., of two-thirds of his cases there were positive indications for operation, while in 34 per cent. there were only relative indications. Of course, in these 34 per cent. there are very positive indications for operation. The higher mortality in the case of the male sex is emphasized, especially in the complicated operations. The reasons advanced for this are that men yield to operation usually later than women and they have not as good vital resistance as women. Furthermore, the stiffness of the abdominal walls requires the use of a greater amount of anesthetic, and men do not stand insults to the peritoneum as well as women. Alcohol and nicotine also have their effect.

He presents statistics from other clinics, as that of Mayo Robson, who has done cholecystotomy on 410 cases of non-malignant disease, with a mortality rate of 1.9 per cent. His general mortality rate corresponds rather closely to that of the writer. He also presents statistics from the clinic of Czerny, which are in the main about the same, although possibly a trifle higher. The statistics of Campbell are also presented, in which the total mortality is 20.9 per cent., as compared with 19 per cent. of the writer.

In general it may be stated that the mortality of pure gallstone cases is from 3 to 5 per cent., while in those with benign complications, it is from 15 to 20 per cent. and with malignant complications 75 to 85 per cent. The total mortality being about 20 per cent. He emphasizes the great desirability of having the patients presented at the proper time for surgical treatment and states that the determination of this proper time is not altogether difficult. He is not a believer in operations in the acute conditions if they can be avoided, but if necessary he believes in doing a cholecystectomy at that time.

He especially emphasizes the necessity for early operation on stones in the common duct and states that as soon as the diagnosis can be made an effort should be made immediately to remove them, the result of such operations being extremely satisfactory. Of course, the mortality of all

operations upon the bile passages depends very largely upon the presence or absence of active infection. The writer also discusses the question of permanent results and devotes some attention to the interesting subject of recurrences. In his entire experience he states that he has seen only three cases of his own in which he felt satisfied that stones had reformed after the operation, so that he regards it as an extremely rare occurrence. This he believes, nevertheless, is an argument for the removal of the gall bladder in all suitable cases and it is his rule to always remove it if there is any evidence of disease of its wall in the presence of stone. The only recurrences after removal of the gall bladder are disturbances resulting from adhesions or the possibility of having left stones behind in other portions of the biliary passages. Hernia in the scar is of relatively rare occurrence. In his earlier cases, operated on from 1890 to 1900, 4 per cent. of them had stones left behind. In the cases operated on from 1905 to 1907 only 1.5 per cent. had stones left behind. In 17 per cent. of the cases operated upon in the first period mentioned there was disturbance from adhesions, while only 4 per cent. in the last period. In other words, with increasing experience the postoperative difficulties have been reduced to a minimum. He urges very strongly the appreciation on the part of the internist of the importance of early surgical treatment of diseases of the bile passages.

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*Marmorek's Serum in the Treatment of Surgical Tuberculosis. (Das Marmorekserum in der Therapie chirurgischer Tuberculose.)*

STRAUSS. *Muenchener medizinische Wochenschrift, No.* 42, 1908.

There are two groups of specific therapeutic measures employed in tuberculosis. One group is derived from living or dead tubercle bacilli which, when introduced into a tuberculous subject will produce a local reaction through the anti-tuberculin of the tuberculous tissue. In this group belong Koch's tuberculin, old tuberculin, and the new tuberculin and its derivatives. The serum of Behring, von Ruck, etc., comes under this heading.

The other group comprise the antitoxins. Maragliano was the first to employ such serum which he obtained from horses. Marmorek's serum is prepared differently and is analogous to diphtheria and tetanus antitoxin. Young bacteria (primitive bacilli) are grown on leucotoxic calves serum media. The filtrate contains the tuberculosis toxin which is injected into guinea pigs which are later innoculated with tubercle bacilli. They are rendered immune and then the serum is obtained.

The serum is injected once a day for ten days in the amount of ten to twenty cubic centimeters. Then there is a pause for several weeks and the injections are repeated. Hoffa and others claim to have obtained the best results from the rectal injection of the serum. By this means the danger of introducing a foreign serum into the blood is avoided as only the antitoxin is absorbed. An analysis of the results obtained by other men with this serum show that the Marmorek's serum is absolutely harmless and

it can easily be administered in all cases of tuberculosis. Hoffa is enthusiastic in its use in cases of surgical tuberculosis where it brings about an early and permanent recovery. In the literature 936 cases have been treated with this serum and in the great majority a favorable result followed its use. Sonnenburg reported a case of rectal tuberculosis which Mikulicz and himself had treated for years with the knife and thermocautery which has remained permanently cured after the use of the serum.

Hoffa treated 22 cases of long standing tuberculous disease of the bones and joints and had a complete and permanent recovery in 18 per cent. and a marked improvement in 18 per cent. The author employed the serum in 38 cases of surgical tuberculosis, the histories of which are given.

Subcutaneous injections alone were given in 3 cases, combined rectal and subcutaneous in 21 and rectal injections alone in 14 cases.

The technic was as follows: Five to 10 injections of 5 cubic centimeters of serum were given subcutaneously every other day. Then after a pause of a week 5 cubic centimeters were given daily per rectum for 20 days. After an interval of 2 to 4 weeks, 20 more daily rectal injections were given.

The ages of the patients were between 3 and 63. There were external evidences of tuberculosis in 32 cases. In 22 there was tuberculosis of the bones and joints, of the genito urinary system in 2, and of the lymphatic glands in 10.

The cases are classified in three groups according to their severity and prognosis. The most severe were those whose tubercular affection had lasted for a long time and had been frequently operated upon. Of these 2 entirely recovered; 1 was improved; 3 were unimproved and 1 died.

The second class comprised those whose general physical health was better but whose tubercular affection had lasted a number of months in spite of other treatment. Ten entirely recovered; 6 were improved; 3 were unimproved and 1 died.

The third group embraced the mild cases in well nourished patients who had a single tuberculous foci. Of these 9 entirely recovered and 2 were improved.

To sum up: Of the 38 cases of surgical tuberculosis, treated with Marmorek's serum, 21 entirely recovered; 9 were improved; 6 were unimproved and 2 died.

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*Treatment of Carbuncle. (Zur Behandlung des Karbunkels.)*

MAX GRASMANN. *Deutsche medizinische Wochenschrift, No. 42, October, 1908.*

The treatment of a large carbuncle is one of the most difficult tasks presented to the practicing physician. Very frequently he acts in a too dilatory and conservative fashion and not infrequently his efforts are unsuccessful. The question of what shall be done with a well marked carbuncle has been the subject of a considerable amount of debate. One

should remember that we are not dealing with a simple inflammation of the skin and subcutaneous tissues, but an extensive phlegmon of the deeper layers of the skin and subcutaneous tissues, with extensive gangrene. Poultices and local applications are, of course, of no value, and resolution of the inflammation in the presence of necrosis is out of the question. Softening of the necrotic tissue can scarcely be expected. Ice promotes the gangrene rather than diminishes it. All of these measures, therefore, are to be avoided.

There are a great many methods of treating carbuncles, but the underlying principle should be a broad exposure of the gangrenous tissue, with the most favorable conditions for discharge and the prevention of an advance of the process. It is quite evident that only an energetic surgical attack can attain these results. Hyperemia by means of the suction apparatus is rarely of any great benefit. The quickest and surest result is obtained by excision, which was first recommended by Riedel. His method was to make a circular incision around the carbuncle close to its edge, with a tangential incision at each of the diameters. In this way four flaps were formed, which are dissected up and from beneath which the carbuncle is excised down to the basis of the infiltration, usually to the muscle. The whole wound was packed with dry gauze. Riedel concluded that extirpation provides first, that a dangerous focus of inflammation within a half-hour is transformed into a harmless loss of skin and subcutaneous tissue; secondly, that a progression of the local process is prevented, as well as a general infection; thirdly, the loss of sound skin in the region of the carbuncle is reduced to the minimum; fourth, healing is relatively rapid, and, fifth, the scar is a satisfactory one.

The result of extirpation is most striking. Fever and pain vanish within a few hours, the general condition improves, and the wound heals usually in a few weeks with rapid granulation. The operation, however, presents some technical difficulties and is hardly to be performed by an operating physician. Madelung has proposed a method by which he simply makes a large skin and subcutaneous tissue flap, extending down to the fascia and containing the carbuncle. This is lifted up, the infected tissue is shaved off, the wound is filled with sterile gauze, and the skin flap is replaced as nearly as possible over the gauze. This method has given good results. The method proposed by the writer consists in a deep crucial incision over the carbuncle extending down to the muscle. Four flaps containing the tissue down to the muscle are dissected back and gauze is packed into the wound. This gauze is moistened in hot boric and salicylic acid solution, which stops the hemorrhage, as well as having a decided antiseptic action. Hemorrhage is sometimes rather marked, but this is readily controlled by the tampon. The necrotic tissue is usually dissected off either with a knife or scissors. A curette is never used. In 24 to 48 hours the dressing is changed and the same dressing reapplied. The change in the conditions is most striking, and usually after about eight days the most of the necrotic tissue has been separated and the wound is covered with healthy granulations. A few sutures draw the flaps into their normal position and the healing of the wound is greatly accelerated. In four weeks' time the wound is usually reduced to a small granulating

area. The writer has used this method in many cases with most satisfactory results.

He concludes that the most important points in the local treatment of carbuncle are, first, early, thorough incision from the healthy into the diseased tissue; secondly, wide exposure of the gangrenous tissue by dissection of flaps from the muscle fascia; thirdly, tamponing of the wound with gauze wet in hot boric and salicylic acid solution, the result of which is to stop the hemorrhage and to cause the separation of the gangrenous tissue.

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*Concerning the Value of the Histological Diagnosis of Tumors in Surgical Practice. (Ueber den Wert der histologischen Geschwulstdiagnose fur das chuurgische Handeln.)*

EUGENE FRAENKEL. *Muenchener medizinische Wochenschrift, No.* 49, *December,* 1908.

The writer states that the recent article of Rovsing of Copenhagen, in which he belittles the value of microscopical examination of tumors for diagnosis, is the reason for this article.

Rovsing reports numerous errors into which he has been led by the diagnoses of Danish pathologists and states that such diagnosis is extremely unreliable. He especially emphasizes this point in connection with tumors of the bladder, which he states must always be treated as though they were malignant.

The writer states that it is quite impossible to determine with certainty, the nature of a tumor of the bladder without having some of the bladder wall to which it is attached. It is also quite possible that benign tumors of the bladder may become malignant. The fact that at times it may be difficult to tell from small bits of a tumor, whether or not it is malignant, is no argument against the value of such methods of examination.

The writer emphasizes the fact that the clinician should see to it that the pathologist is provided with the proper kind of material for examination. Experience and knowledge are required in this connection and when both are employed the result is usually satisfactory. It is sometimes necessary to remove more than one piece of tissue before a satisfactory diagnosis can be made; and the writer emphasizes the very great importance of the co-operation of the surgical and pathological clinics.

He calls attention to the fact that the examination of bits of tissue from the inside of the uterus, which is really a gynecological method, has always been regarded by the pathologists as more or less unsatisfactory, yet even in this condition careful examination usually is productive of satisfactory diagnoses. He agrees with Rovsing, that the diagnosis of sarcoma is at times very difficult, especially as regards its being mistaken for benign lymphoma, syphilitic granulation and especially round cell chronic inflammation.

He further states, however, that careful examination by means of the various elective stains will almost always allow of a correct diagnosis. He further states that he has on many occasions by such methods cor-

rected the clinical diagnosis of the surgeon. He disagrees with the statement of Rovsing that the X Ray diagnosis has made microscopical examination of tumors of the long bones, quite unnecessary.

The writer further emphasizes the very great importance of the microscopical diagnosis of tumors of the lymph glands, especially the differentiation of tuberculosis, Hodgkins disease and pseudo leukaemia. He further calls attention to the fact that such examination of an enlarged lymph gland has frequently led to the diagnosis of carcinoma where a primary tumor was quite unsuspected. It has also been of great value in certain cases in the diagnosis of syphilis.

In conclusion he emphasizes the fact that microscopical diagnosis is not infallible any more than clinical diagnosis but the histological examination of bits of tumors removed by intelligent surgeons, is often times of the very greatest importance in the surgical management of a case.

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*The Treatment of Cryptorchismus.* (*Die Behandlung des Kryptorchismus.*)

N. W. Kopyloff. *Archiv für klinische Chirurgie, Band.* 85, *Heft,* 4.

Cryptorchismus is not a rare condition. Examination of the recruits in Austria shows it to occur about once in a thousand times. Kocher distinguished two varieties.

1. Retentio testis, where the testicle was arrested in the course of its journey from the abdominal cavity; and,

2. Ectopia testis, where the testicle was misplaced to the side of the inguinal canal, as for instance, in the region of the perineum.

Retentio testis is of very much more frequent occurrence than ectopia testis. The causes of cryptorchismus are to be found in disturbances of development. The testicle arrested in the inguinal canal often causes pain and sometimes shows a tendency to malignant degeneration. The mechanical irritation to which it is subjected is the frequent cause of reflex nervous manifestations. The condition has long interested surgeons and one of the first surgeons to investigate the condition was Szymanowski, who himself suffered with malignant degeneration of the arrested testicle, was operated on by Pirogow, and died as a result of metastasis.

In the early part of the last century, efforts were made to replace the testicle into the scrotum. Because of infection, however, these operations proved to be dangerous and were not generally practiced. Many surgeons endeavored to induce a transposition of the testicle by bloodless methods but with little success. Others proposed to replace the testicle within the abdominal cavity but this too was unsatisfactory. The introduction of asepsis allowed the operative treatment to be further developed. Schuller was one of the first to successfully replace the testicle in the scrotum. Since his work operations have been generally performed for the relief of this condition.

From the eleventh to the thirteenth years seems to be the preferable age for the operation. In many instances cryptorchismus is associated with hernia. Various authors have advised different measures for the

fixation of the testicle in the scrotum. These methods may be divided into three groups.

1. Simple fixation of the testicle at the bottom of the scrotum.

2. Fixation with the formation of a canal for the vas deferens, which prevents the testicle from being drawn up again.

3. Extension of the testicle replaced in the scrotum by means of sutures fastened to the thigh.

All of these methods have given satisfactory results in the relief of the painful symptoms. In many instances the testicle has not remained in the scrotum but has been drawn upward.

The writer reports fourteen cases of cryptorchismus upon which he has operated in the last two and one-half years, eight of which were complicated with hernia. The operation which he has performed with very satisfactory results, has been to expose the inguinal canal as in operation for hernia. The testicle is loosened from its adhesions and the vas deferens and vessels are carefully separated from the surrounding tissues. Sometimes a circular incision of the surrounding tissues is necessary. With forceps or fingers a canal is made into the scrotum and a suture with a needle attached to either end is passed through the bottom of the testicle and the needles passed out through the skin at the bottom of the scrotum, one on either side of the raphe and the suture when drawn tight and tied securely fastens the testicle in the scrotum. A circular suture is placed around the vas deferens at the entrance to the scrotum and another at the opening of the external ring. If a hernia exists, the radical operation is done at the same time.

In four of his patients the testicle has remained in the bottom of the scrotum. In the other four it has drawn upward. In all the cases the symptoms have been relieved.

In conclusion the writer states that fixation of the testicle is indicated:

1. In cryptorchismus where pain exists.

2. In cryptorchismus associated with hernia.

3. In cryptorchismus associated with hydrocele of the testicle and cord.

4. In cases where the testicle is located deep in the abdominal cavity, it is better to close the internal ring.

5. The operation proposed by the writer has given satisfactory results.

6. Castration should be performed only in exceptional instances where there are evidences of malignant degeneration of the testicle, or when the testicle cannot be replaced in the scrotum.

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## PSYCHIATRY

### Edited by G. Alder Blumer, M. D.

*Concerning the Question of Degeneracy.* (*Zur Entartungsfrage.*)

EMIL KRAEPELIN. *Zentrablatt für Nervnheilkunde und Psychiatrie, October,* 1908, *No.* 271.

The increase in the number of the insane has been very large in the last fifty years, in England having changed from twenty-five to thirty per

cent. in ten thousand of the population, in the low countries from five to fourteen, and in Prussia from five to sixteen. These statistics must be guardedly accepted as patients are received more readily into institutions, and in some colonies or countries no provision at all has been made for the care of the insane. But some results may be accepted in considering the clinical forms of mental disease existing in people living under different conditions of life. Kraepelin's investigations in Java, for instance, compare favorably with those of Ufa in Russia and the Balkans, in showing the rarity of paresis. Hoch has shown the threefold increase of this disease in North American negroes in the last forty years, whereas before emancipation, it was hardly known. Prussian statistics show that in Berlin not only has the number of patients in asylums increased from twice to four times as much in proportion to the population as in rural districts, but that the cases of paresis have also become disproportionately larger. There can be no doubt that large cities supply a great number of victims of paresis and alcoholism. When alcoholism and syphilis are regarded in their causative relation to arteriosclerosis, it may be easily seen how great is the contribution of the larger cities to the increase in mental diseases.

Worse than the direct effects of alcohol and syphilis, are the degeneration of every degree following the cell destruction caused by them. The influence of alcohol upon the vitality, bodily and mental health of descendants is well known, as well as the devastation which is brought about by syphilis in increasing degrees. The evil effects of syphilis upon the offspring cannot be too widely announced, for the number of feeble-minded, epileptics, psychopathic criminals, prostitutes and vagrants descended from alcoholic and syphilitic parents, and transmissive of their defects, is immeasurable. It is true that their shortened lives react as a partial remedy, but they are a burden which impedes the natural progress of the community.

In two directions do the deteriorating influences act upon the people: they rob us of our freedom, in that they inflict upon us a multitude of responsibilities, and they turn us away from our natural conditions. The more required of an individual, and the further his sphere of activity is extended, the greater the increase of his cares. As a result there develops a feeling of anxiety, which places a lasting impression upon the will, by reflection, thought and care, foreign to the natural mental processes, and exerting an influence upon all the other activities. An increase of demands upon a definite personal routine leads to a feeling of unrest which must result either in paralysis or overtension of the will. Lack of capacity to begin an effort or to bring it to a successful conclusion, is the initial symptom of a great many morbid states, which may be regarded as degenerative insanity. To these belong, on one hand, persistent anxiety and the phobias, on the other, hesitation and reasoning mania. All such conditions are unknown among savages, and appear very seldom among peasants; they are found in highest development almost exclusively among educated peoples.

A second group of injuries from civilization may be called under the general name of domestication. The development of community life,

which places our minds and our hands at the service of the common good, inflicts far-reaching damage. Health, home and life are made independent of change of day or season, and are secured by the government under artificial conditions. All tend to effeminacy. We are dependent upon general influences, and are helpless as soon as the agencies of the commonwealth fail. Avoidance of marriage, sterility and premature death of children are the results.

Another source of degeneracy is proletarianism. The situation of the inhabitants of great cities leads not only to deprivation of food, but also to absence of fresh air, light, sun and freedom of movement; and these all result in lassitude and debility. A further danger lies in the one-sided development in mental employment, at the expense of the body; and the scheme of education requires the ear and speech, but makes no demand upon the exercise of the will. A common result of these domestic conditions is the weakening of the natural instincts. The suppression of the instinct of self-preservation leads to suicide, an uncommon act among savages. Hunger and sleep do not assert themselves, and a sleepless night leads to the use of hypnotics, all of these incidents promoting physchopathic states.

It is of the greatest importance that all conditions promoting degeneracy be studied, and that the defects of individuals as well as of communities should be taken into consideration by the government, to the end that regulations may be imposed to secure the health of the race.

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*The Question of Dementia Praecox.*

ROBERT JONES. *Journal of Mental Science, October,* 1908.

*Dementia Praecox.*

A. R. URQUHART. *Journal of Mental Science, October,* 1908.

Dr. Jones refers to the report of the British Medico-Psychological Association committee appointed to draw up a "Table of Diseases," from which the term Dementia Praecox was omitted. He then analyzes the term "dementia" referring to the accepted meaning of this word as characterizing any pronounced mental inactivity in contradistinction to the excitement and the depression of maniacal and melancholic states. It is contrasted with amentia, which presupposes imperfect development of the mental powers. There are three forms of dementia praecox, hebephrenic, katatonic, paranoid; these are described and attention is directed to the fact that the conditions so termed have been recognized by writers as far back as Esquirol. Parenthetically Dr. Jones deprecates neologisms of the modern alienist:

"Take, for example, hebephrenia! I wish to know what is the relationship between Hebe, the daughter of Juno and the wife of Hercules, with insanity? Why should this goddess be associated with mental deterio-

ration and decay? Again, in my dictionary 'stereotypy' is stated to be the art of casting by means of a mould, and in another place the art of making stereotype plates!

"The term 'negativism' does not exist either, but 'negativeness' does appear, and is the quality of being negative, negative being further described as a 'picture on glass in which the light parts of the original are opaque and the dark semi-transparent!' There is no connection suggested between these terms and insanity, although they appear to be the stock-in-trade of the alienist of to-day, and I cannot but deplore the coinage of new terms when our own language is so rich in descriptive application."

It would appear from this account of dementia praecox with its teeming multitude of new names—echopraxia, intrapsychic ataxia, echolalia, psychoanæsthesia, heboid insanity—that such a group of mental disorders never existed before; but what about the condition described by Esquirol as "acute dementia," by Hayes Newington as "anergic stupor," and by another as "apathetic stupor," in cases where the patient is deprived of all manifestations of mental as well as of motor energy? The older classification of "mental stupor" gave the hope of recovery which does and did occur, but the term "dementia" conveys the idea of mental degeneration and irrecovery, yet, as stated, recovery not infrequently occurs. Regarding this point Dr. Clouston states: "Kraepelin has taken the term 'dementia praecox' and applied it to practically the whole group of my adolescent cases as described by me in 1873, making it cover the curable and incurable; I object strenuously to the word 'dementia' as applied to any recent and curable varieties of mental disease as being confusing and unscientific."

Dr. Jones summarizes in the following conclusions:

1. There is no definite disease "dementia praecox"; the descriptions applied cover almost every possible variety of insanity.

2. The term "dementia" is inapplicable, because it connotes permanent and irrecoverable loss of mental function.

3. The application of "dementia" is unsatisfactory to cases in which loss of memory is not a prominent early symptom.

4. The term does not state whether it is the terminal stage or the stuporose condition which is of primary importance.

5. The qualifying adjective "Praecox" is equivocal in so far as it leaves it doubtful whether the diseased condition evolves precociously, or whether it is stated to occur in early life or youth. It is therefore a vague and indefinite term, as these symptoms are also known at maturity and even at the menopause, and therefore they should find no place in a scientific or logical classification.

6. A term which implies a definite entity, and which is with some becoming more accepted as such, should be distinguished by definite pathological findings, which is not the case.

7. Finally, it is more in harmony with practice and of greater help to diagnosis and treatment to use in place of "dementia praecox" the term "adolescent insanity," suitably subdivided as at present.

Dr. Urquhart refers to the use of the term "dementia" as implying

incurability, and to Kraepelin's statement that cases of dementia praecox are not necessarily incurable, he objects to the labelling of patients as hopeless or doomed. Of nine hundred and six cases admitted to the Perth Royal Asylum, the persons received after first or repeated attacks of insanity occurring between the ages of fourteen and twenty-five, numbered two hundred and twenty-five. Second to the age period, the notable common factor is the neuropathic heredity as attained in 77.7 per cent. Of all kinds of patients the percentage is 71.81, showing an adverse difference for adolescents of 6 per cent. These figures may be compared with the statistics of general hospitals, as in rheumatism for instance, the recoveries bear a close resemblance to the recoveries from insanity.

One can appreciate an insanity somewhat differentiated by the adolescent period of life in neuropathic persons; one can recognize the general appearances of protean disorders of an immature brain threatened with irreparable damage, tinged with the half-fledged experiences of life in the turmoil of sexual development and the stress of physical development. That these disorders are melancholic, maniacal, delusional, stuporose catatonic, destructive, is evident enough and in accordance with daily experience; but they are usually not exclusively the manifestations of dementia praecox nor of adolescent insanity. Indeed, Kraepelin has been forced to include a case beginning at the age of fifty-six, which has not hitherto been regarded as a precocious period of life.

Dr. Urquhart also objects to the multiplicity of terms, *e. g.* "One can well accept *stereotyped movements* as a descriptive phrase; but is there any need for us to substitute *mutism* for taciturnity or *negativism* for resistiveness? The excuse for scientific jargon is exactness of expression, but in these proposals there seems to be little to induce a change from what is already well understood in favor of any equivocal substitute. By *mute* we describe a person dumb from birth, not a person mentally defective from infancy, and to write about acquired imbecility at this time of day actually prevents clarity of language.

"In what do we gain by accepting dementia and rejecting adolescent insanity as clinical conceptions? We have found the latter term useful in selecting for study certain well-marked cases, but the former affords us no such definite content. Would it aid us in practice? Would it strengthen us in diagnosis, in pathological understanding, in prognosis, or in treatment? I see no grounds for such a hope. The principles and details of treatment are identical with those applicable to other cases of ordinary insanity, the pathology is vague and unspecialized, the diagnosis is elusive, the prognosis is uncertain. Much ink has been shed over dementia praecox, many contentions have ensued, and it would appear that we shall continue to regard this untimely birth as an undesirable alien. Dr. Jones would refer it to the wisdom of Solomon, but Solomon has already spoken—'I gave my heart to know wisdom and to know madness and folly. I perceived that this also is vexation of spirit.' It made him tired."

## GYNECOLOGY

Edited by John A. Sampson, M. D.

*Etiology of Ectopic Gestation.*

CHARLES D. WILLIAMS. *Surgery, Gynecology and Obstetrics, November,* 1908.

The writer thinks that, except in an occasional rare case of ectopic pregnancy in which the etiology is apparent, it cannot be stated with certainty just what lesion or combination of lesions is responsible for the development of this condition. As the ovum is usually fertilized in the ampullary portion of the tube every pregnancy is primarily and temporarily at least an extra-uterine pregnancy. In the etiology of ectopic pregnancy we must look for the cause in the condition or conditions which will prevent the fertilized ovum from reaching the uterus and we should associate it with the most common lesion which is capable of doing this.

About six years ago the writer noticed, in the study of Fallopian tubes, that epithelial lined canals were of very frequent occurrence and that these canals arose from the coalescence and cohesion of the folds of the tubal mucosa as the result of inflammation. He calls these canals false diverticula as opposed to true diverticula which are of very infrequent occurrence. These diverticula may be patent at one or both ends but are more often closed at the mesial and open at the distal end. The fluid exudate in an inflamed tube tends, from gravity, to keep open the end of the canal nearest the fimbriated extremity of the tube, *i. e.,* its most dependent portion.

Opitz in 1903 called attention to these diverticula and in the study of twenty-three specimens of tubal pregnancy, which were cut in serial sections, he found them present in every instance. Opitz thought that their existence afforded a possible explanation of the cause of ectopic pregnancy.

The writer in his study of the various conditions of Fallopian tubes found that they may appear normal and yet show on microscopic examination evidences of pre-existing inflammation and that infection from the gonococcus, more than any other kind, predisposes to the formation of these false diverticula. He found these diverticula in all specimens of ectopic pregnancy studied by him and also in the opposite tube when that had been removed.

From a review of the literature and as a result of his own studies he concludes that the formation of false diverticula due to the adherence of the folds of the tubal mucosa, as the result of salpingitis, is the most constant anatomical change or lesion found in the Fallopian tube capable of impeding the descent of the ovum into the uterus and thus producing a tubal pregnancy. He ventures the assertion that at least ninety-five to ninety-eight per cent. of the cases have their origin in this manner.

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## Original Communications

# THE PRESENT STATUS OF BLOOD-VESSEL SURGERY.

*Read before the Schenectady Medical Society, May 19, 1909.*

By E. MacD. STANTON, M. D.,
*Schenectady, N. Y.*

This paper will be limited to a discussion of surgical procedures having for their object the preservation or construction of blood-vessels in such manner that they may functionate as blood-carrying tubes.

The idea of suturing vessels after injury is by no means a recent one, Hallowel in 1759 possibly succeeded in repairing a wounded brachial artery and a case is reported by Broca in 1762, in which suture of a longitudinal incision of an artery was successfully performed. Assmann in 1773 treated of this subject in a dissertation at Croningen, but abandoned actual attempts after two experimental failures in animals. Henry Lee of London in 1865 made some experiments with puncture to ascertain how large an opening could be made without fatal hemorrhage and described the method of repair in arteries without suture. Beale made an extensive microscopic examination of Lee's specimens, giving the pathologic histology of repair. Gluck in 1883 reported nine experiments with arterial suture but his efforts were futile because he was unable to control the hemorrhage through the needle punctures. He also devised aluminum and ivory clamps for uniting longitudinal incisions in vessels and succeeded with the ivory clamp in one experiment on the femoral of a large dog. In 1889 Bruci sutured six longitudinal incisions in arteries of dogs and was successful in four. Heidenhain in 1894 closed by cat-gut suture an opening in the axillary artery, one centimeter long which was accidentally made while removing carcinomatous glands. The case made a good recovery and circulation in the extremity

was not disturbed. From this time on we find isolated reports of experimental suture of arteries and an occasional report of successful suture of operative arterial wounds.

Wounds in veins are relatively easy of repair and thus the suture of wounded veins has long been an accepted procedure in surgery. Small wounds of veins may often be successfully closed by the application of a simple lateral ligature. More extensive wounds are easily closed by a simple running suture of fine silk, care being taken to evert the edges so as to secure coaptation of the inyima.

It is to J. B. Murphy, who in 1896 reported a series of thirty-four experiments that we owe the first really serious attempt on the part of a great master in surgical technic to solve the question of arterial suture. Besides reporting thirty-four animal experiments, Murphy reported two clinical cases in each of which the femoral artery and vein were sutured, they being injured in each case. Both of Murphy's clinical cases were successful as regards saving the extremities although it is doubtful if the suturing of the vessels served more than to tide over the circulation until a collateral circulation could be established.

Murphy in his work seems to have grasped the essentials of the technic practically as they are understood to-day, he lacking only certain refinements in detail, else his results must have compared favorably with those of later workers. Murphy considered the essential points in technic to be, (1) complete asepsis; (2) exposure of the vessels with as little injury as possible; (3) temporary suppression of the blood stream; (4) control of the vessel while applying sutures; (5) accurate approximation of the walls; (6) perfect hemostasis by pressure after clamps are taken off; (7) toilet of the wound.

Murphy's attempts at direct suture of completely divided vessels were not as a rule successful, which fact led him to devise a mode of union by invagination, as follows: Three double needled sutures are passed though the end of the vessel to be invaginated at equidistant points in the circumference of the vessel and then from within outward through the wall of the opposite vessel at such a distance from the end as it is desired to telescope the one into the other. As these sutures are drawn taut and tied, the invagination is accomplished and a firm union established. The invaginating sutures are then reinforced by a row of sutures binding the intussusens to the intussuseptum after the first sutures are tied.

By this method Murphy achieved partial success in four out of thirteen experiments. Considering the fact that his asepsis was frequently imperfect as shown by the large number of infections, these results are by no means bad.

The difficulties encountered in suturing vessels led early to attempts to employ mechanical appliances as aids, somewhat as the Murphy button is used in intestinal anastomoses. In 1894, Robert Abbe reported the results of some experiments in which he simply united the cut end of the vessels over smooth glass canulas, much as we unite rubber tubes over glass couplings in laboratory work. Abbe had little hope of permanent success by this method but believed that the obliteration of the patent lumen left at the close of the operation would be a slow process and might allow time for the formation of a collateral circulation.

In 1895 Quirolo described the use of a glass canula in the formation of Eck fistula as follows: "The isolated portion of the portal vein is drawn through a short glass tube, pulled back over its forward edge, and bound firmly upon it. The glass tube thus covered by the vein is now drawn into the free end of the vena-cava, which is then bound on the glass tube, so, however, that the first loop which fastens the portal vein is not covered by the vena-cava. The artery compression forceps are loosened, and thereupon the blood streams out of the portal veins into the vena-cava without touching a foreign body, and only coming in contact with the vessel endothelium."

In 1900 and 1901 Payr advocated the use of magnesium tubes in a similar manner, the metal magnesium being gradually absorbed by the tissues.

The use of mechanical appliances here as elsewhere in surgery is obviously inferior to simple suture for permanent anastomoses but for temporary anastomoses it is a simple and ideal method and has reached its highest development in the transfusion technic of Crile which he describes as follows:

"The vessels to be anastomosed, usually the radial artery of the donor and a suitable sized superficial arm vein of the recipient, are exposed and after selection of a canula of a size suitable to the size of the vessels the end of the vein is either pushed through the handle end of the canula with the help of the fine-pointed forceps, or pulled through by means of a single suture inserted in its edge, the needle being left on the suture and passed through the canula ahead of the vein. The handle of the canula is then

tightly seized by a pair of hemostats (the fingers are too clumsy), three mosquito hemostats, or small self-locking forceps such as occulists use, are snapped at equidistant points on the end of the vein, taking care not to have the tips extend up into the lumen more than is necessary to get a firm hold. The end of the vein is then cuffed back over the canula by gentle simultaneous traction on the three hemostats, and tied firmly in place with a fine linen thread in the groove nearest to the handle. The cuffed part is next covered with sterile vaseline, being careful not to get any into the open end. This facilitates slipping the artery over the cuff. The hemostats are removed from the vessel edge, and the artery may then be put in place.

"Owing to the elasticity of the arterial wall it usually shrinks considerably when the pressure from within is removed, as it is at the free end. To obviate this it may be necessary to dilate the end very gently by inserting the closed jaws of a mosquito hemostat covered with vaseline, and opening them for a short distance. The three hemostats are then applied to the edges just as with the vein, and the artery is gently drawn over the cuffed vein on the canula and tied in place with another fine linen suture applied in the remaining groove. The mosquito hemostats are removed, and finally the large hemostat which has been snapped on the handle of the canula during all this time is removed. The process is then completed. After the transfusion the canula is removed, both artery and vein are ligated, and the wounds are sutured."

In 1902 Carrel published his first paper on the technic of blood-vessel suturing and the technic, as now almost universally adopted, was perfected by Carrel and Guthrie in 1905.

Because it will help us to trace the evolution of the technic, the method as developed by Carrel and Guthrie will be described under the headings as outlined by Murphy in his pioneer work.

1. *Complete asepsis.*—Every worker in this field has emphasized the importance of a perfect aseptic technic. Carrel goes so far as to express the opinion that the ordinary aseptic technic is inadequate for this field of surgery. In this connection he says, "It seems that the degree of asepsis under which general surgical operations may successfully be performed is probably insufficient for good results in vascular operations. Generally it is considered that a wound is aseptic when it does not suppurate, and when healing occurs 'per primem intentionem.' But it should be remembered that this clinical asepsis is far from the ideal condition

of absolute asepsis, between absolute asepsis and infection, which is evidenced by the ordinary symptoms of inflammation occurring in the operated area, and by suppuration, there are many intermediate degrees of attenuated infection. It is certain that every operative wound, though clinically aseptic, is more or less infected. This infection is not accompanied by the classical symptoms of inflammation; *i. e.*, there is no fever, œdema, redness, pain, or heat of the tissues, or if these phenomena are present, they escape detection. The tissues unite 'per primem intentionem,' and from a clinical standpoint all the reparative processes occur as if the wound were really aseptic.

"In this so-called aseptic healing of a wound there are clinical symptoms which render possible the detection of such slight infection. The tissues may be found to have lost their softness; the deep portions of the wound, to be a little hardened; the skin adherent to the subjacent tissues, and sometimes its color around the thread slightly reddened. All these symptoms may disappear within a few days or a few weeks. Nevertheless in such a case it is certain that an infection occurred, though only in a slight degree. It is probable that the more marked degrees of this kind of infection may be sufficient to cause thrombosis in blood-vessel anastomoses.

"In the first experiments made in France, the coexistence of rapid and apparently aseptic healing of the wound and of obliterative thrombosis was frequently observed. But at the same time it was found that the skin was a little reddened along the line of suturing; that the deep tissues were hardened around the vessel; and a thickening was always perceptible to the touch, especially at the point of anastomosis. Direct observation by dissection, eight or ten days after the operation, showed a strong inflammatory reaction of the connective tissue in the region of the anastomosis. The connective tissue sheath of the blood-vessel was markedly thickened, and neighboring aponeuroses and muscles were often found adherent to the vessel itself, the latter being occluded by a clot.

"In our present experiments, aseptic precautions are as rigidly observed as possible. Scrupulous care is taken to prevent infection. The asepsis is very far from being perfect, but it is, however, far more perfect than in the first experiments. The result is that healing of the wound is very rapid; the skin is not adherent to the subjacent tissues; there is no reaction of the connective

tissue, and no inflammatory thickening of the external sheath of the blood-vessel; and thrombosis does not occur. Even in the cases where an extensive dissection of the muscles of the neck is made for instance, in the transplantation of the external jugular vein behind the trachea and its anastomoses to the carotid artery of the opposite side—the tissues, six days after the operation, were found soft and normal. There was no thickening of the connective tissue around the vessel, and the circulation through the anastomoses was excellent. It is probable, therefore, although we cannot affirm it, that, in order to obtain constant good results in blood-vessel surgery, the degree of asepsis must be higher than is ordinarily necessary in surgery."

Sweet on the other hand believes that Carrel has overestimated the factor of asepsis and certain it is that while demonstrable infection is almost absolutely certain to be followed by failure, many of the thrombi in the sutured vessels form much too quickly for bacteria to play an active part in the formation. The writer is inclined to believe with Sweet that those who report uniformly successful results succeed not because they enjoy a monopoly of aseptic technic, but because the man who will master the numerous details of aseptic work on animals, where the problems are more complicated than in human surgery, will also be the man who will master the extremely delicate mechanical details of the work.

2. *Exposure of the vessels with as little injury as possible.*—Probably in no other branch of surgery is absolute delicacy of manipulation more important. No structure is more delicate than the intima lining the vessel and it is absolutely essential that this membrane be not injured. Not only must the vessels be handled gently but during the suturing the intima must be protected from drying by moistening with normal salt solution or better by coating the intima with sterile vaseline or alboline.

Tissue juices are among the most potent excitors of coagulation and for this reason every effort should be made to avoid squeezing the tissues. Likewise the operative field must be kept absolutely bloodless by the ligation of all collateral and other vessels and by the prompt removal of any blood which may accidentally soil the tissues as the extravasated blood itself may act as an excitor of further coagulation.

3. *Temporary suppression of the blood stream.*—This may be accomplished by the use of light compression forceps, the jaws of

which are protected by soft rubber tubing, or by the use of a tape or heavy silk ligature lightly applied around the vessel. In this step it is essential that the intima be not fractured by the compressing forceps or tape.

4. *Control of the vessels while applying sutures.*—This is chiefly accomplished by the stay sutures described below. No metal instruments such as tissue forceps must come in contact with the intima during any of the manipulation.

5. *Accurate approximation of the walls.*—This is accomplished by suturing, which is in itself a simple procedure and yet a most delicate one, the success of which depends upon the absolute accuracy of manipulations bearing about the same relationship to ordinary surgical suturing that the watchmaker's art bears to the work of the steamfitter. The No. 15 round needles used in this work are scarcely larger than a hair and for suture material one must usually separate No. 1 Chinese silk into its component strands in order to obtain a fine enough suture. To facilitate handling and also to reduce to a minimum the foreign body effect of the fine sutures as they pass within the lumen of the vessel, the sutures are impregnated with sterile vaseline before using. Not only must the sutures be placed with such accuracy as to prevent leakage but they must unite the vessel ends in such a way as to leave a smooth endothelial surface at the line of suture. In our own work thrombosis has more frequently occurred at points of endothelial defect due to inaccurate suturing than from any other demonstrable cause.

Before suturing it is essential that the lumen of the vessels be free of blood beyond the point of occlusion by the compression clamps as any trace of blood, clotting in the vessels during the suturing, might serve as a focus for later thrombosis. As mentioned before the exposed intima must be protected from drying by covering with sterile vaseline or oil. The suturing itself is accomplished as follows:

With the ends to be united, sufficiently near each other, the adventitia of each vessel is drawn down over the end by means of fine pointed dissecting forceps, or by the fingers, and cut squarely off with small straight scissors. By so doing the adventitia left on the vessel retracts and leaves a free field for inserting the sutures. Then with the fine silk strand thoroughly saturated with sterile vaseline or oil, the needle is passed through all the coats of the vessel from without inward as near as possible to the cut end, and

passed through the end of the second vessel in the opposite way. The two vessels are brought intimately in contact by tying the suture. The ends of the suture are not cut close to the knot, but about four inches from it. This gives a stay suture to hold while completing the technic. Two more similar stay sutures are inserted with the circumference of each vessel divided into thirds between them, and if the stays be drawn taut the closely approximated ends of the vessels are divided into three equal parts, so as to form an equilateral triangle.

With the three stay sutures successfully placed, the problem becomes a comparatively easy one. Tension is brought to bear on any two of the stays—it is immaterial which two as long as the third one lies underneath. On the third stay below the vessels is attached a mosquito hemostat which is allowed to pull it down, and thus prevent the needle from being passed through the lower part of the vessel walls when the final sutures are placed. The weight of the hemostat is too small to damage the walls, but great enough to insure complete retraction of the lower angle. With the three stays thus held a continuous over-and-over suture is run between the upper two, placing the stitches as close together and as near the ends of the vessels as possible, except near the stays, where they are placed a little farther away in order to include the stay stitch holes. With one-third completed, the tension is shifted to the next two stays, and the hemostats shifted to the third stay, which is thus brought underneath. This is repeated once more, and by that time the anastomoses is completed and ready for the blood to flow through. It should be remembered that the distal clamp should always be removed before the proximal clamp. If this is not done the blood rushes against the distal clamp under arterial pressure, and throws too great strain on the anastomoses, and may cause leakage. Even if a few drops of blood exude when the clamps are properly removed no further leakage will follow, provided, of course, that the sutures have been properly placed. The operation is one of great delicacy, and it is essential that the vessels should be handled with extreme gentleness, and just as little as possible, to avoid any risk of causing clotting.

6. *Perfect hemostases by pressure after clamps are taken off.*—There is always a slight hemorrhage from the stitch holes but provided the needles and suture material used are of the proper size and correctly placed, this is readily controlled by applying gauze compression for one or two minutes.

7. *Toilet of wound.*—Murphy believed that the tissue juices and excess of blood should be removed by drainage but it is now known that hemostasis should be absolute throughout the operation and any blood escaping should be removed at once. If trauma of the tissues is reduced to a minimum and there is no infection there will be, little or no serous exudation into the wound, and thus the same may be accurately sutured without drainage.

Carrel and his co-workers have demonstrated beyond any doubt that with proper care end to end anastomoses of arteries more than two or three millimeters in diameter, may be performed with chances of success even greater than that obtained in intestinal suturing. The results reported range from almost uniform success to almost complete failure apparently depending upon the technical skill of the individual workers.

Not only may arteries be united but arteries may be anastomosed with veins in such a manner as to reverse the circulation in any given part and segments of veins may be substituted for an artery for considerable distances, the vein wall thickening so as to withstand the increased pressure. Not only may fresh segments of arteries or veins be used to bridge over spaces but segments of arteries kept aseptically for long periods of time on ice or even in formalin solution may be used with a fair prospect of success.

The practical application of this development of a satisfactory technic for the suture of blood-vessels will probably be limited largely to procedures having for their object the maintenance of circulation in cases of injury or thrombosis of vessels, the occlusion of which is likely to cause gangrene of the parts nourished, as in the case of the axillary, femoral and popliteal arteries.

In the field of experimental physiology, on the other hand, the benefits to be derived from a technic which allows of the successful transplantation of entire organs and even limbs must be very great indeed.

It is to be hoped that the stimulus which has been given to the study of vascular problems will yield some data which will help to clear up the as yet unsolved field concerning thrombosis and embolism which is so common and fatal a complication following surgical operation.

It is foreign to the scope of this paper to attempt a review of the recent literature on the surgery of aneurisms. However,

Matas, in 1903 introduced a new principle into the surgery of aneurisma which makes it sometimes possible in favorable cases to preserve the blood-carrying function of the vessel while at the same time effectually curing the aneurism. The essential features of the Matas operation consist in first controlling the blood supply to the aneurism after which the sac freely opened and the cavity of the aneurism itself obliterated by multiple rows of sutures, uniting endothelium to endothelium, as the opposite walls of the sac are brought together. By this method in the case of saccular aneurisms it is often possible to so place the first row of sutures as to close the neck of the sac without obliterating the lumen of the vessel, after which the remainder of the aneurismal sac is obliterated by such additional rows of sutures as may be necessary.

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# THE PERCUTANEOUS TUBERCULIN REACTION OF MORO.

*Read before the Medical Society of the County of Albany, April 14, 1909.*

By ERASTUS CORNING, M. D.

*Mr. President.*—In February, 1908, Ernst Moro, of Munich, in the *Munchener medizinische Wochenschrift,* directed the attention of the profession to a new tuberculin reaction, to be used in the diagnosis of tuberculosis. The application of the test is of the utmost simplicity. An ointment is made, consisting of equal parts of Koch's Old Tuberculin, and anhydrous lanolin. A piece of this, the size of a pea, is rubbed on the skin of the thorax or abdomen, for one or two minutes. At the end of a varying period, in the majority of cases at the end of thirty-six hours, there may be noted at the side of inunction, from two to several hundred small papules or vesicles. This local reaction causes no pain or discomfort, beyond a slight itching, not present in all cases, and no systemic reaction follows. No previous preparation of the skin is necessary, the area of inunction does not have to be protected after application of the ointment, and the patient can continue his daily routine thereafter without interruption. The eruption fades at the end of a week or ten days, leaving in some cases, small brownish discolorations, which later disappear entirely. A negative reaction is not followed by any perceptible change in the skin.

Since publishing his first observations, Moro himself, as well as other workers in Germany, France and America, have contributed further to our knowledge of this diagnostic procedure. Their modifications and observations will be reviewed briefly.

1. *The ointment.*—In July, 1908, Moro, publishing in *La Presse Médicale,* advises that the ointment be made up of six parts of tuberculin, to five parts of lanolin. The ointment is easily made. Anhydrous lanolin is heated in a mortar until it liquefies. The mortar is then placed in an ice pack, and the tuberculin is slowly added, while the whole mass is vigorously stirred, until it solidifies. It may then be transferred to an airtight container, and if kept in a cool place, will last indefinitely. Ten grams of this ointment will suffice for one hundred tests. The ointment is on the market, in the form of small collapsible metallic tubes, each tube containing enough for from two to four tests.

2. *Technique.*—The skin of the supra mammary region, just below the sterno clavicular articulation, the infra mammary region, and the epigastrium, have all been recommended as favorable sites for the application of the ointment. All three have been made use of in this series. The most uniform results seem to be obtained in the epigastric region. Some workers mark out a control area. Unless some skin eruption is already present, this would seem to be a superfluous precaution. It has been suggested that the finger used in rubbing in the ointment, be protected by wearing a rubber finger cot. In institutional work, where a large number of applications are to be made in a short time, this might be more comfortable, though scarcely necessary. In the present series the finger has not been protected, and no unpleasant results have been noted. Better results are obtained if the ointment is rubbed in briskly, and with considerable pressure instead of lightly. After the application has been made, the area of inunction should be left exposed for from five to twenty minutes. This prevents the clothing from absorbing part of the ointment and spreading still more of it outside the area intended.

3. *The reaction.*—The most important point to be noted concerning the reaction, is that it varies so widely in intensity in different individuals. The points of reaction may be few in number; either a faint pink, or a deep blood red in color; they may be the size of the head of a small pin, or two or three times that size; the macular, papular, or vesicular type may predominate; they may be close together, or widely separated, though always lying within the area of inunction, save in the event of a so-called sympathetic, or conjoined reaction. When the ointment is applied to the supra, or infra mammary region, in certain cases the corresponding area on the opposite side shows a sympathetic reaction, in the shape of a slight hyperaemia of the superficial capillaries. When the area of inunction is in the epigastric region, this sympathetic reaction is shown by a symmetrical enlargement of the area of reaction. Instead of appearing as a few points, there may be thirty or forty, or, in the strongly marked reactions, several hundred. The reaction may be noted at the end of eight or ten hours, or it may not appear until seventy-two hours have elapsed. The earlier reaction is the more common. On the average, the reaction is observed best at the end of thirty-six hours. Moro reports that in one case,

a Lichen Scrofulosorum developed after the application of the ointment. It is not uncommon for patients to note a slight itching sensation in the area of inunction, but in the majority of cases in this series in which this symptom was present, it was of so slight a degree that it was not mentioned until the patient was questioned about it. Beyond that, absolutely no unpleasant after results have been recorded.

4. *Interpretation.*—Attempts have been made to determine, if possible, the significance of the widely varying degrees of reaction. So far the results are contradictory and unsatisfactory, nor is this to be wondered at. We know, as a matter of clinical fact, that a tuberculin reaction does exist. But we do not know why it exists. Until additional facts have been discovered, the decision of this question must lie with the results of repeated observations on large numbers of cases. Since the introduction of this test, sufficient time has not elapsed to make such data available. All observers do agree, however, that in the very far advanced, terminal cases, no reaction occurs.

5. *Comparison of tests.*—It is at once apparent, from what has been said, that the Moro test is superior to the others now in use, provided the results obtained are equally reliable. The Calmette ocular test is now universally admitted to be dangerous. In a series of one hundred and fifty-eight cases, recently reported, there were noted two cases of severe purulent conjunctivitis, six cases of severe recurring phlyctenular conjunctivitis, one of which developed corneal ulcers, and one case of keratocyclitis, with a large central corneal ulcer, and permanent impairment of vision. At best, the ocular test is a cause of much discomfort to the patient, and from the ease with which a conjunctivitis may be set up by particles of dust, or other mechanical irritation, is not infrequently an annoyance to the physician in interpreting results.

The old method of subcutaneous injection was open to at least three objections. The temperature had to be taken every two hours, and unless the patient was in a hospital, this was often an insurmountable difficulty. The danger from an unclean syringe, while slight, could not be overlooked. Finally intercurrent affections, such as a mild grippe, a tonsillitis, or even constipation, was enough in many cases to render the finding of doubtful value.

The scarification test of Von Pirquet, is practically without

danger to the patient, and is more reliable than the subcutaneous method, but it is more trouble to the physician than the Moro, and with children, and very nervous patients, the process of scarification is often unpleasant.

Detré's test, from the point of view of technique, is merely a modification, or rather an amplification of Von Pirquet's and so may be considered with his.

To sum up, therefore, Moro's test, as compared with the others, has the advantages that it is easy to apply, and easy to interpret, it requires no instruments, it causes no inconvenience to the patient, has no element of danger, and is applicable to two classes of patients, office patients and children, who offer difficulties in the matter of proper observation, or of actual opposition.

The majority of the cases so far reported, where the test has been tried alone, or in comparison with the other tests, have been from the larger children's clinics, both here and abroad. Moro's work has been almost exclusively with children. McHamill, Carpenter and Cope, publishing in the "Archives of Internal Medicine" for December, 1908, report a series of one hundred and sixty cases, all of them children under eight years of age. In preparing this paper free use has been made of their text. In Germany, at the clinics of Von Bauer and Friedrich von Muller, the test has been used on adults with satisfactory results. In general, it may be said, that alone, Moro's test has given good results, and that in those series where it has been used comparatively with the other tests, a close parallelism has been established. This refers particularly to the proven tuberculous and the control cases. In the class of suspected cases there is bound to be a certain amount of contradictory evidence. Until such time has elapsed that suspects who have reacted positively, either recover, develop undoubted lesions, or come to autopsy, the interpretation of statistics in this class of cases depends to a certain extent on the angle of vision of the individual observer. For instance, one observer reports a series of sixty cases, clinically free from tuberculosis; forty-four reacted positively to Von Pirquet's test, and only nineteen to Moro's. The man who favors Von Pirquet's test, considers that as evidence in its favor, on the ground that it will detect the largest number of tainted individuals in a given group. The defender of the Moro faith, on the con-

trary, points to the possible sources of error in the first test, and claims superiority for the Moro, on the ground that with that test, a positive reaction means Tuberculosis with an exclamation point, and not Tuberculosis followed by a question mark. The general practitioner, standing on neutral ground, only desiring a test that he can swear by, and not one to swear at, throws up his hands, and decides to wait a little longer before using either. All three points of view are justifiable. This is, of course, an extreme instance, and in the main the results have been fairly uniform, though it is not within the scope of this paper to review, even superficially, the vast amount of literature that has accumulated on this subject.

The present series was started with three things in view. First, to compare results, for or against, as far as possible, with the work already done. Second, to discover by personal experience how practical the test was in office practice, as opposed to institutional conditions. And lastly, to secure additional data concerning the test as applied to adults, instead of to children.

The test has been applied in sixty-seven cases of which record has been kept. The cases have been grouped as follows:

1. Proven Tuberculosis. The cases in this group are all cases of Pulmonary Tuberculosis, where bacilli have been demonstrated in the sputum.

2. Far advanced, or terminal Tuberculosis. These cases were selected and the test applied to confirm the statement that such cases do not react to Tuberculin.

3. Control cases. Those in which no suspicion of Tuberculosis existed.

4. Suspected cases.

The first three of these groups may be disposed of quickly. It was soon found that, allowing for the small number of cases, the findings of previous workers were being confirmed in the present series. Accordingly, no attempt has been made to swell the number unnecessarily. In the first class, that of proven tuberculosis, eighteen cases were observed. Of these, fifteen, or 83%, gave positive reactions, and three, or 16%, were negative. In one of the cases that failed to react, an acneiform eruption was present, and it is possible that a mild tuberculin reaction may have been obscured and overlooked. In the other two cases no such condition existed. No satisfactory explanation has so far been offered as to why a small percentage of

proven cases fail to react, but this is the fact with all of the tests. It has been noted, however, that some cases which fail to react the first time, will react if a second application is made. It was not possible to carry out this procedure on these two cases.

In the second class of cases, five cases were considered. All of these patients (100%) failed to react. They were all bedridden at the time the test was applied. Three of them died within a month's time, one of them has since died, and the other, though under proper care and surroundings, is losing ground. This latter case was first seen on February 8, 1909. The test was reapplied on April 6th. On neither occasion was any reaction noted.

In the third class of cases, those in whom no suspicion of tuberculosis existed, and who were used as controls, seven patients were tested and none (100%) reacted.

In the fourth group, the suspects, are included thirty-seven cases, out of which number eleven, or 29%, gave positive reactions. It is in this class of patients naturally, that any tuberculin test is of the greatest value. For this reason, more attention has been paid to this group than to the others. Not all of the cases in this group were actually suspected of having tuberculosis. In some instances, the test was applied more with the idea of eliminating suspicion than of confirming it. The series covers a period of nine months and, whenever possible, the cases have been kept track of and the subsequent history added.

The cases which failed to react included two cases of empyema, two of rectal abscess, several of chronic bronchitis, one each of pelvic abscess, pelvic peritonitis and pelvic inflammation, and one each of intercostal neuralgia, trumatic periostitis of the finger, pleurisy, and so on. In two cases where a positive reaction was expected, none was noted. One was a case of tubercular peritonitis, and the other was a case of tuberculosis of the right ankle. The clinical diagnosis in the latter case was confirmed by the Bender Laboratory. In neither case was any pulmonary involvement noted.

Of the eleven cases which reacted positively, seven were observed personally, one was reported by Dr. James Vander Veer, one by Dr. Carpenter, of Hudson, and two by Dr. Orton, of Salem, N. Y. Dr. Vander Veer's case was that of a woman who was suffering from gall stones, carcinoma of the liver and

carcinoma of the stomach. Twenty-four hours after the ointment had been applied, a very profuse crop of vesicles was noted. No involvement of the lung was found at that time, and the case has not been followed up. Dr. Carpenter's case was one that he suspected of having tuberculosis, but no bacilli could be found in the sputum. On November 4th, 1908, he noted a positive reaction. On December 23rd he wrote that they had just succeeded in demonstrating the presence of tubercle bacilli in the sputum. Dr. Orton's first case was that of a woman, aged 22, who had always been well until two months before he saw her, on January 23, 1909. During that period she had had a dry, harsh cough, with no expectoration. The temperature on four successive days showed an afternoon rise to about 100.5°. No râles were noted on examination, the pulse ranged between 102 and 116, the respirations were 20-24, and the heart sounds could be heard clearly over all parts of the chest. She complained of tiring easily on slight exertion. Forty-two hours after applying the ointment, he noted a mild hyperaemia and three distinct papules. On February 13, 1909, he reported that no sputum can be obtained, and that the patient is losing weight at the rate of a pound a week. On March 13, he writes, "The patient, Mrs. ———, who gave a positive reaction to the Moro test, died in Plattsburg, on March 3rd. I understand that the immediate cause of death was tubercular meningitis."

Of the cases observed personally, the first was that of a man, aged 26, who in April, 1907, had slight hemoptysis. Following exposure and strain, in May, 1908, he suffered again from hemoptysis. In 1907 the examination of the lungs was negative. He had been well in the meantime. In May, 1908, the temperature was slightly elevated, the pulse rate was increased and there were very indefinite signs in the chest. The patient was a clerk, and was allowed to continue his usual work. In the course of a week or so, the temperature had returned to normal, the weight had increased three pounds, and the physical signs had practically disappeared. The Moro test was applied, and was very strongly positive. This led to an X-Ray examination, and Dr. Holding reported positive, though slight findings. The man continued to gain weight. A month later he complained of a swelling in the right side of the neck, and a buzzing in the right ear. A discharge from the ear was noted, the case was referred to Dr. Bedell for treatment and he reported

a central perforation, probably tuberculous. The discharge from the ear was examined for tubercle bacilli, but none were found. The glands in the neck continued to swell, and were finally operated on by Dr. Lempe, and the clinical diagnosis of tuberculous glands was confirmed by the Bender Laboratory.

Case 2, is that of a boy, aged eleven, who was seen in the Dispensary of the Albany Hospital. He complained of pain in the left side. The boy's mother said that he had been complaining for some time, and that as his father had only recently died of tuberculosis, she was afraid that the boy might be affected. Further questioning revealed the fact that the boy had slept in the same bed with the father. Examination showed the right side clear, but the signs in the left lung were so obscured by a pleurisy, that it was difficult to make a positive statement. The Moro test gave a positive reaction, and the boy was sent to the country. Just before he left, the mother sent him to the office, as she thought that some skin disease was developing. Examination revealed a most marked sympathic reaction. The original area of inunction had been about two inches in diameter. At the end of two weeks the eruption had spread until it occupied an area six inches in diameter. Dr. Sautter was good enough to see the case, and he said that it presented no lesion other than what might be expected from a strongly marked reaction.

Cases 3 and 4, were both cases of Pott's Disease, one of them showing involvement of the left apex.

Case 5, perhaps should not be included under this head, as he is undoubtedly tuberculous, but is considered here because so far no bacilli have been found in the sputum. He is thirty-five years of age, has been sick for four months, has lost weight, the temperature curve is characteristic, and the physical signs are marked.

Case 6, is that of a man aged thirty-two, a stone worker by occupation, who, some months ago, complained of a swelling of the left knee. He stated that it had bothered him more or loss for nearly ten years. He reacted positively to the Moro test, and has since been operated on for tubercular peritonitis.

The last case is, in many respects, the most interesting. Miss X, aged twenty-two, trained nurse by occupation, has lost one sister from pulmonary tuberculosis. This occurred some years ago, and she was never unduly exposed to this possible source of infection. She herself has always been well. Since entering

the training school, two and a half years ago, she had gained weight. Beyond occasional constipation, she has had no further trouble. This past Christmas, she had an attack of pain in the epigastrium, not very severe, lasting a week or more, and followed by a mild attack of jaundice, from which she recovered without trouble. Since that attack she has gained weight. It was considered at that time that she had suffered from a mild attack of gastro duodenitis, and an equally mild catarrhal jaundice. In the latter part of February, she again reported sick, this time was a typical attack of follicular tonsillitis, including high temperature, and pains all over her body. At the end of three days the throat was practically clear, and the temperature had touched normal. She complained, however, of pain in the epigastrium. Fearing a return of her previous trouble, she was kept in bed, and appropriate treatment instituted. During the course of the next few days, it was noted that her temperature rose every afternoon to about 100.5. Tuberculosis was considered as among the possibilities, and the chest was examined. Nothing was found that warranted a positive, or even a strong opinion. The Moro test was applied, and in thirty-six hours a typical reaction was developed. Dr. Laird was then asked to see the case in consultation, which he did. After a careful examination of the lungs, he gave it as his opinion that the physical signs were not sufficient to warrant a diagnosis. Von Pirquet's test was then applied, and the reaction was positive. An X-Ray picture was suggested, and Dr. Holding said that the result of his examination alone did not reveal any very positive evidence. There are some indefinite signs in the chest; the X-Ray shows very slight findings; the temperature is not absolutely typical, and the history of the patient speaks against, rather than for, a diagnosis of tuberculosis. So far, then, in this case we have an instance where a tuberculin test has been of real value. This is the type of case where it should do its best work, in protecting both the patient and the physician.

In conclusion, then, we may say, in considering the present series, that whereas not enough cases have been available to make the results of much confirmatory value, yet they are at least suggestive. The test is simple, without danger, and would seem to be the best one for use in general office work. In the present series, the majority of patients were from twenty to forty years of age. The youngest was eleven, the oldest was sixty.

Age seems to have no effect on the reaction. It must be remembered that this test has one thing in common with all others of a similar nature; it is not infallible. Inasmuch as it does eliminate some sources of error, it is a step in the right direction.

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# THE TREATMENT OF THE SUPPURATIVE CONDITIONS OF THE ACCESSORY NASAL SINUSES.

*Read before the Medical Society of the County of Albany, January 13, 1909.*

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This is such a large subject, and there are so many differences of opinion as to the best operative procedures for the relief of suppurative conditions of the accessory sinuses that the writer in this paper will be able to only outline the various methods of operative treatment. It may be said that the same surgical principles apply to operations upon the accessory sinuses, as to any other surgical operations where suppurative processes exist, viz.: the more radical the operation the better the chance for a permanent cure. In my paper I will consider only cases of chronic sinusitis, as the majority of the cases of acute sinusitis, even when the sinus contains some pus, get well either spontaneously or after very conservative treatment.

We will consider first the treatment for suppurative conditions of the antrum of Highmore, as they are the most common. This cavity sometimes becomes diseased as a result of a carious tooth root, and before resorting to any method of treatment the teeth should be carefully looked over. Recent investigations show, however, that diseased roots are the cause of antral empyema in only a small percentage of the cases (from 5 to 10 per cent). In the vast majority of the cases the antral disease is the direct result of pathological conditions in the nose, so that before undertaking radical measures, any abnormal nasal conditions such as deviations of the septum, polypi or hypertrophies of the inferior or middle turbinated bones, should be corrected. These abnormal nasal conditions interfere with proper drainage from the antrum when it contains pus, and should be removed as a preliminary step to the radical operation. In some cases of antral suppuration that have not been going on too long, such intra-nasal operations

with the use of antiseptic sprays and applications will be followed by a gradual lessening of the discharge from the antrum and in a small percentage of cases a cure. The internal administration of the usual coal tar products and opiates for the relief of the severe pain that patients usually complain of is worse than useless and only serves to mask symptoms.

To come now to a consideration of the various operative measures employed in cases of chronic maxillary sinusitis it may be said without going into the subject in detail that the radical operation through the canine fossa should be the operation of choice in the majority of the cases. During the past few years an intranasal operation through the naso-antral wall has found many ardent supporters. In my own hands this operation has not been as successful as the one through the canine fossa. I have operated upon a number of cases of chronic antral empyema in this way, and in several cases the final results were not satisfactory, that is, the discharge did not entirely cease and the radical operation had to be performed eventually. This operation consists, after the removal of the anterior end of the inferior turbinated and middle turbinated bone, also (if it is much hypertrophied) of making a large opening through the naso-antral wall and removing the degenerated mucous membrane and granulations through the nasal opening. Theoretically this is an ideal operation, but it is very difficult even when a large opening is made to reach with your curettes every part of the antrum. One has only to study sections of skulls, showing the great differences in the size and shape of the antrum, to understand why this is so. This method has, however, many strong advocates such as G. L. Richards, Freer, Curtis, Myles, Rethi and others. The great difficulty is to keep the opening from the nose into the antrum free. Even when a large opening has been made, granulations spring up so rapidly, that in some cases it is almost impossible to maintain proper drainage. The rule in all operative work upon the maxillary sinus, just as in the case of the frontal sinus, should be to perform the operation that will be followed by an obliteration of the sinus, and this is only possible in the operation through the canine fossa.

The radical operation, the Caldwell-Luc, or some modification, consists in making a wide opening through the canine fossa into the antrum removing if possible the entire anterior wall and diseased mucous membrane. In many cases the antral mucous

membrane, which normally is about one-twenty-fifth of an inch thick, will be found greatly thickened and degenerated. At times in fact I have found the antrum completely filled with polypoid granulations, or even polypi. This operation also has the tremendous advantage that you can directly inspect by carrying small electric lamps into the antrum, every part of it, while operating. This is not possible in the intra-nasal operation, or at least very difficult. A good many operators make a counter opening into the nose, but I do not think this is either necessary or desirable in many cases. When the operation is completed the antrum is packed with vioform or iodoform gauze, which is left in place for several days unless the temperature rises. The antrum is repacked (after the first dressing) every day until the cavity fills in with healthy granulations and the discharge has stopped. When the sinus is large this usually takes from six to eight weeks, sometimes even longer. In connection with suppurative processes in the antrum of Highmore, it is well to remember that the antrum may be infected directly from a diseased frontal sinus. In some cases it is merely the reservoir for pus coming from the frontal sinus. Such an antrum would, of course, not get well unless the frontal sinus was first operated upon.

The occurrence of multiple and particularly recurring polypi in the nose should always make one suspicious of sinus disease. This is true in the majority of the cases of multiple polypi formation, and they will keep on returning until the diseased sinus is operated upon.

The sinus which is perhaps affected next in frequency is the frontal, and I cannot refrain at this time from mentioning the equanimity with which patients suffering from recurring periodical unilateral headaches are frequently regarded. Some of these poor unfortunates go for years with a diseased frontal sinus, going from one physician to another and swallowing barrels of coal tar products with, of course, no relief. It may be said that nobody but a specialist could be expected to recognize such a condition. This is, however, not so. A chronic suppurative frontal sinusitis is one of the easiest conditions to recognize. The recurring periodic headaches which are usually localized over one eye with the discharge of pus from the nostril on the same side are symptoms which usually make the diagnosis easy, that is if the frontal sinus is thought of at all as a possible cause for the headaches. Many patients are, of course, themselves to

blame. The average person pays very little attention to a purulent discharge from his nose even when long continued. On the other hand he usually promptly seeks the services of an aurist when he has a discharging ear. Let us consider for a moment how important an early recognition of diseased sinuses is.

The long continued presence of pus in the sinus, particularly when drainage into the nose is interfered with, may cause an infection of the cranial cavity, by causing a necrosis and finally rupture of the bony walls, resulting in either meningitis, epidural abscess or brain abscess. Dr. C. G. Coakley in a recent paper lays great stress on this danger. The infection may also extend to the brain by way of the lymphatics or blood vessels. Evidence to show that mico-organism causing meningitis reach the brain by way of either the nose, naso-pharynx or ear, is increasing all the time. Certainly an infected sinus with a necrotic cerebral wall offers a most favorable place for the specific germ of meningitis to enter. Pus in the ethmoid cells may break through the cribriform plate resulting in meningitis, or through the orbital wall into the orbital cavity, resulting in an orbital cellulitis with edema of the upper and lower lids and exophthalmos.

Pus in the sphenoid sinus may also lead to grave complications. The superior and outer walls which are thin may be perforated if drainage into the nose is interfered with, resulting in epidural abscess, brain abscess, meningitis, sinus thrombosis, and even blindness and exophthalmos. The cavernous sinus passes along the lateral wall of the sphenoid sinus, and is the one usually involved in cases of sinus thrombosis. While as Coakley states intra-cranial complications are far more apt to follow disease of the ethmoid and sphenoid than the frontal sinus, we sometimes find during operations upon the frontal sinus defects or necrosis of its posterior or cerebral wall. It is surprising that necrosis of the bony walls of the frontal sinus is not more common in cases of long continued suppuration, as a matter of fact it is uncommon.

I will consider the operation upon the frontal sinus, ethmoid cells and sphenoid sinus at the same time, because in almost every chronic suppurative process in the frontal sinus the ethmoid cells are also involved. Jansen, in a recent paper, truly states that because of the many varieties in the form and size of the frontal sinus and the extraordinary complications of the ethmoid cells, it is very difficult to relieve the existing conditions

by one method of operating. The three radical operations that have been followed by the best results are the Killian, the Jansen and Coakley's open operation. The last, which, in my judgment, is the best for the majority of the cases, will be considered first.

Coakley, who has had perhaps the largest experience of any man in this country, opens the frontal sinus and ethmoid cells through two separate incisions, the first being carried through the center of the eye-brow (the eye-brow not being shaved) and the other beginning under the eye-brow and running downward midway between the inner canthus of the eye and the dorsum of the nose, terminating at the middle portion of the nasal bone. This last incision is also made when an operation for exploring the sinuses is performed and is one that Arnold Knapp has recently advocated. With chisel and bone forceps the nasal process of the superior maxilla is removed, thus opening at once into the anterior group of ethmoid cells. The entire ethmoid labyrinth can be reached in this way, and by working almost straight back the sphenoidal sinus is reached. This operation is parallel with the floor of the cranium and there is much less danger of going through the floor than when the maxillary route is used, an operation which is very dangerous.

The operation which the writer has performed in the majority of his cases of chronic suppuration in the frontal sinus consists in making an incision through the center of the eye-brow, stripping back the skin and periosteum and then with chisel and rongeur forceps, removing the entire anterior and part of the inferior wall. As soon as the mucous membrane which is usually thickened and degenerated is cut through, there is an escape of thick and usually foul smelling pus. In cases of long standing, the sinus will sometimes be filled with polypoid granulations. The contents of the sinus are thoroughly cleaned out, the entire diseased membrane being removed, and the cavity is then packed, not too tightly, with vioform or iodoform gauze. I am in the habit of using only a few silk wormgut sutures in the outer angle of the wound, the rest of it being left open. The object of this method is to stimulate the formation of healthy granulations from the bottom of the sinus and if the after treatment is properly looked after the cavity will completely fill with granulation tissue and will be come obliterated, thus preventing any reinfection from the nose. The packing after the first dressing is changed every day. This is practically the Coakley open

operation. When the sinus is very large, the writer has followed the plan of leaving a narrow bridge of bone extending across the sinus in some cases, removing the anterior wall above it and below it. This will prevent the depression which you get after the radical Killian operation. The ethmoid cells are then entered by a separate incision in the way before described.

In the Killian operation one large incision extending from the outer margin of the eye-brow to about the middle of the nasal bone, is made. Killian also leaves a bridge of bone but he forms his bridge directly of the supra orbital margin. This operation is followed by much more scarring and deformity particularly when large sinuses have been operated on, but it also obliterates the frontal sinus, because after the operation is completed and the incision closed a firm pad is applied, held in place by a tight bandage, which presses the periosteum against the posterior wall of the sinus, in this way when healing occurs, obliterating it.

It is of course very important that in performing this operation every focus of suppuration particularly in the orbital recesses of the sinus, should be reached. X-ray examinations for this reason are of the greatest value in determining not only diseased conditions of the sinuses but the size and shape of the sinus and particularly its height and depth. This can be positively determined if both antero, posterior and lateral skiagraphs are taken. The plates also show the orbital recesses. It is of the greatest service, while operating, to have such a plate placed against a window near the operating table, as a guide. The skiagraph also determines the presence or absence of the frontal sinus and one will be saved the embarrassment of operating on a supposed case of sinus disease and finding that there is no sinus.

In the Jansen operation the ethmoid cells and frontal and sphenoid sinuses are opened through one incision, and he has also adopted the bridge formation and the primary suture when possible. He also, to improve cosmetic effects, makes a flap of the bony periosteum of the anterior frontal wall, and after thoroughly cleansing the cavity presses this into it. When primary closure of the wound is impossible, Jansen forms two bony flaps, an anterior and a marginal, as well as a solid bridge. If there is much depression after any of these radical operations, the cavity can be filled with paraffine. The writer personally has

not had to do this in any case, because he has had practically no deformity after any of his operations on the frontal sinus.

In conclusion a word may be said about the intra-nasal operation for chronic suppurative processes in the frontal sinus known as Ingals' method. This method consists in enlarging the naso frontal duct, and so entering the sinus, a method that Mosher of Boston, however, after a careful study of the applied anatomy of the frontal sinus in one hundred wet specimens and fifty cleaned skulls states to be very dangerous. He also states that it is only by chance that the naso frontal duct can be catheterized. Douglas has also pointed out the fact that the internal wall of the frontal sinus, the internal table, frequently lies so low above the orifice of the duct that any cutting instrument even if successfully introduced through the naso frontal duct would penetrate the cranial cavity. It is only fair to Ingals to state, however, that his latest instruments are safer than the former ones. He now passes a guide through the duct into the sinus, next by means of the X-ray determines that the position of the guide is correct and then drives the burr, which cuts only on its anterior face along the pilot until the whole course of the infundibulum has been enlarged and the sinus entered. This operation does not provide, however, the perfect drainage that you get by the external open operation.

Another point that I wish to bring up in closing is the insertion of tubes, either rubber, silver or gold, from the frontal sinus into the nose after the external operation is completed. That is not only absolutely unnecessary but often does actual harm by interfering with the formation of healthy granulations at the floor of the sinus. If part of the inferior wall of the sinus has also been removed, so having one large cavity, sufficient drainage is obtained with the gauze packing.

One other point in closing. I do not wish to be understood as advocating radical operative measures in every case until conservative methods of intra-nasal work have been tried. A frontal sinusitis will in some cases clear up like magic if the anterior end of the middle turbinated bone is removed, thus providing for good drainage. It must be remembered also that what I have said in this paper applies to the cases of chronic suppuration of the sinuses, and not to the acute cases. The majority of the acute cases will clear up if you don't do anything.

# MASTOIDITIS.

*Read before the Medical Society of the County of Albany, January 11, 1909.*

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During the past twenty-five years our knowledge of the causes of mastoiditis has been so increased that numerous papers with more or less logical deductions have appeared. It is my desire to call your attention to the exciting causes of temporal bone inflammation, the symptoms, diagnosis and treatment, but not to the complications of such involvement. Briefly you recall the tympanic cavity as an irregular space containing three bones, directly connected with the pharynx by the Eustachian tube, but protected by the drum from the external auditory meatus and having accessory air cells in the mastoid process, with intimate relation to the inner ear, its proximity to the dura, carotid artery, large venous sinuses and facial nerve.

Predisposing causes of otitis media suppurativa include lues, tuberculosis, grippe, the acute infection diseases, hypertrophy of the lymphoid tissue in the vault of the pharynx and faucial tonsil and intra-nasal deformities and infections. Tuberculosis is the direct cause of 13 per cent. of the cases in childhood and of these 50 per cent. is primary through the blood stream and the remainder from extension of throat tuberculosis. When an acute otitis media is observed in a patient with diabetes the mastoid is more frequently the site of infection, 73 per cent. of the cases, where in non-diabetics only 56 per cent. so end. An acute otitis media is by extension of inflammation to the epitympanic space, aditus ad antrum and mastoid antrum apt to predispose to chronic otitis media with or without acute or chronic mastoiditis. When an acute otitus does not respond to treatment we have a chronic suppuration. In this chronic inflammation we may have a continuous discharge from the ear or one more or less intermittent. Mastoiditis is of two kinds, primary and secondary.

Primary mastoiditis may be from direct extension from the naso-pharynx of micro-organism, or by blood or lymph streams—occasionally as a result of trauma and in one per cent. of the cases, lues. Secondary mastoiditis follows an acute or chronic otitis media, more often the latter. There are two forms of

involvement. First, an osteitis beginning in the mucous membrane, lined air cells. Second, osteomyelitis from initial bone marrow infection. The line of demarcation is often obscure and sometimes impossible.

That a cavity or cavities such as are found in the mastoid process of the temporal bone will give varied clinical pictures is obvious, yet how often only the typic symptoms are expected.

For an accurate diagnosis we must have a careful history, must carefully observe the case, take blood count, especially differential, find the organism exciting the disease and examine the discharge microscopically for bone dust. The history may be one of sudden sharp pain localized over the affected ear, side of neck, deep beneath the mastoid tip or even the entire side of head. The more acute the disease the greater the pain. Disturbance of hearing from slight impairment to absolute loss. Intermittent or constant "running ear." Cases of most extensive necrosis have been where the discharge was intermittent. Sleeplessness or restlessness. When a patient has had a chronic otitis for years a slight extension may not cause pain but simply prevent normal sleep. Dizziness from either retained secretion or labyrinthine involvement. Aprosexia and this even after the u-ual causes, such as adenoids have been eliminated. The condition may be caused by sense of pressure in the mastoid or absorption of toxins from that space.

Observation of the cases with q.2.h. temperature chart shows range from 99° to 102°, with, however, much greater constitutional disturbance than is usual with such a fever. Blood count shows absolute leucocytosis but especially relative polymorphonuclear increase. It is claimed that a polymorphonuclear percentage of 70 is suggestive of pus and 80 per cent. is positive.

By means of culture the definite organism is localized and here experience teaches that a streptococcic or mixed streptococcic infection is much more dangerous and more apt to demand an operation than staphylococcic or pneumococcic.

On examination we find a more or less profuse purulent secretion, at times with very offensive odor. Perforation of the drum with evident necrosis of the ossicles or not, occasionally a carious opening into the antrum, and prolapse of the posterior superior canal wall downward. Mastoid at times swollen, congested and edematous with tenderness especially marked in children over the antrum or tip, perhaps a distinct mass pressing the auricle

away from the head and forward. Furuncle of the external cartilaginous canal and peri-auricular abscess may be misleading.

Treatment is medicinal and operative. We clean the middle ear by careful thorough irrigation of bichlorid, boric acid or lysol. If the perforation in the drum is small a probe pointed knife is used to enlarge the opening allowing free drainage, all granulations removed. Nitrate of silver, peroxide of hydrogen and powders may be used. The patient must be in bed, a free calomel-salt purge administered, and an ice coil applied but for not more than forty-eight hours, unless improvement is rapid. Some advise heat but having had several in my own experience cured by ice I prefer it.

Operatively, two classes present, simple and radical. The simple operation, the one formerly used entirely, is being displaced, especially in the chronic cases by the more rational radical. After the temporal region is shaved, cleaned and the ear irrigated, a curvilinear incision to the bone is made, five millimeters behind the auricle extending from the mastoid tip upward to the superior auricular attachment. Periosteum and skin retracted and if no sinuses present we find the supra-meatal spine, then with gauge or chisel scale off the bone until the antrum is opened, which is recognized if the tip of a curved probe passes into the middle ear. The entire pneumatic structure is then obliterated with chisel, gauge or rongeur. Softened bone having been entirely removed, the wound is cleaned. The edges are only separated with a narrow gauze packing, not forcibly distended as formerly, and a large sterile dressing applied.

The radical operation of the past ten years is the same up to the stage when the antrum has been opened, then the cartilaginous external auditory canal is dissected from its base as far as possible, the tube is then divided transversely at or near the drum. The partition between external auditory canal and antrum is removed as a wedge of bone with apex at the aditus ad antrum. Below this apex lie the facial nerve and horizontal semi-circular canal, lower still the oval window containing the stapes. The floor of the tympanic vault is then removed, opening up the middle ear cavity. The malleus and incus are separated and removed with any remnants of the drum membrane. The entire space is thoroughly curetted to firm smooth bone. The Eustachian tube opening is obliterated to prevent subsequent infection from the pharynx. The fibro-cartilaginous meatus is divided and anchored

back in the bony depression. The skin incision closed, the cavity packed and treated through the meatus. The object being the carnification or epidermatization of the entire pneumatic process.

Results have not been all cures for in some the discharge will persist and in others facial paralysis coming on shortly after is annoying. One observer says that if the truth were told from 6 to 25 per cent. of the cases have facial paralysis. On the other hand cases that have presented the complications of thrombosis of the sinus, meningitis, brain abscess, etc., are now successfully treated in ever increasing numbers whereas, heretofore, death was inevitable.

In conclusion, any discharge from the ear is a constant menace to that patient's life and such a discharge must be stopped. Sudden discomfort in an infant, otherwise normal, may be from the ear, neglected acute mastoiditis may result. All cases presenting mastoid tenderness combined with sagging posterior superior canal wall should be operated upon. Obscure symptoms of lateral sinus or intra cranial involvement, call for immediate operation. Cases of dizziness, aprosexia and sleeplessness must be examined as to their mastoid condition. Does any surgeon allow pus to remain in a wound or organ? Why then does the family physician persist in saying that if a "running ear" is cured there will be a discharge in some other part of the body?

Otologists have failed to impress upon the family physician, and through him the laity, the absolute necessity of curing all "running ears."

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## SINUSITIS OF THE ACCESSORY NASAL SINUSES.

*Read before the Medical Society of the County of Albany, January* 13, 1909.

By ARTHUR HOLDING, M. D.,
*Albany, N. Y.*

We are indebted to Drs. Killian, Coakley and Caldwell for the successful application of skiagraphy to determine the shape and contents of the accessory sinuses of the nose. I will not tire you by giving the details of their investigations. It is sufficient to say that they have been exhaustive. That skiagraphy of the sinuses is valuable is best evidenced by the enthusiasm of the nose and throat specialist over the results shown. You of course

do not have to believe it when an X-Ray man gets enthusiastic, but when a specialist in another line of work gets enthusiastic over the work of an X-Ray, man, it is evident that there is something of value in it.

With the proper technique, outlines can be obtained of the frontal and maxillary sinuses as well as the ethmoid cells. If pus or oedematous membranes are present in one or more of the sinuses the affected sinuses will cast a denser shadow than normal. There is, in different individuals, such wide variation in the size of the frontal sinuses, in the number and position of their septa; and occasionally such a great lack of symmetry, that the use of the X-Ray in this region would be fully justified even if it could give us no other information than anatomical details, but coupled with its revelations concerning pus, it is said by operators to be "invaluable."

In order to use the X-Ray successfully for exploring the accessory sinuses of the nose, it is necessary to obtain radiographs of very good quality. The usual procedure is to place the patient in a recumbent position, face downward, with his forehead and nose resting upon the plate holder, and to adjust the tubular portion of the compression apparatus over the back of the head. The usual exposures in Germany are two to three minutes but is is possible to obtain brilliant negatives with exposures of 30 to 60 seconds by using American apparatus. Care should be taken to avoid causing an X-Ray alopecia on the back of the head; it is noticeable and in subsequent medico-legal procedures it may also be noticeable.

The appearance of a radiograph of the face and its usefulness in diagnosis depend much upon the position of the tube and the direction of the rays with reference to the base of the skull. We must avoid superimposing the shadow of the horizontal plate of the frontal bone upon that of the frontal sinus, or the shadows of the petrous portion of the temporal bone upon those of the maxillary sinuses, or the shadow of the basilar process of the occipital bone upon that of the ethmoid cells.

# THE NEED OF VISITING AND CERTIFIED NURSES.

*An address to the Instructive District Nursing Association of Troy, N. Y., March 1, 1909.*

By J. MONTGOMERY MOSHER, M. D.,
*Albany, N. Y.*

Dr. Berry has invited me to address you upon the subject of the visiting or district nurse. The topic is a large one as the problem of nursing has not yet reached its final solution, and much is to be done before this department of practice shall be thoroughly understood. During the last twenty years nursing has become recognized as one of the most important agencies in the care of the sick. It is true that for ages nurses have been occupied in this direction. But the endeavors of the early Christian women, the consecration of the various religious orders, the establishment of field hospitals by Queen Isabella in the wars with the Moors, and the administrative successes of Florence Nightingale, are incidents of history revealing conditions to be met by women, and having only incidental bearing upon developments of recent years. The trained nurse of to-day is the result of a logical evolution. In hospitals it was necessary that housekeeping should be carried on by women. It was natural that this duty should be extended to the patient, in the care of the bed and person, and the administration of food and medicine. In this way the need of training was revealed, and training schools have been established for the benefit of the hospitals themselves. Refinements of training followed in natural course and led to the profession of trained nurse.

This is in no way an encroachment upon the physician, for his work has changed with the demand of modern science. The time when he drove about, solemn, silent and portentous, and left a mysterious mass of powder in an awe-struck and apprehensive household, has passed. Now there is little actual cure of disease, for there are only four specific drug antidotes known—iron, mercury, iodine and quinine. The physician's duty is to discover the nature of the disease, to determine the resources of the patient in resisting and surviving the attack, and to fortify this resistance at every possible point. In pneumonia he is more watchful of the heart than of the lungs; in nervous diseases he seeks to prevent the fatal

bedsore; in consumption he protects the digestive system and restores nutrition. He deals more particularly with the individual and has come to rely more and more upon the nurse. There is no fear that a properly trained nurse will assume the prerogative of a physician, any more than that he will attempt to do clumsily what she can do so well. Only an imperfectly trained woman, one who has attended a case of sickness in her home, or has heard some lectures, will have the temerity to step in where angel doctors fear to tread.

Salaries are not paid to nurses in training, in hospitals, the education being regarded as an equivalent, and the diploma and prestige are expected to command adequate compensation after graduation. The course of hospital training usually covers three years, and in first-class hospitals is complete and exhaustive. The nurses who receive this instruction are prepared for the emergencies and difficulties of the most critical cases, and are usually particularly well qualified for surgical work. But all cases of sickness or injury are not critical, and most people are not able to meet the expense, which, with incidentals, amounts to about thirty dollars a week. The great majority do not go to the hospitals, and disease is no respecter of persons. Yet the poor and those in moderate circumstances require the same therapeutic measures as the rich. For meeting this want I understand your organization has been effected. It is proposed to supply nursing service in the homes of the poor, and for those who cannot afford to pay the rates of the hospital graduate nurses. This purpose is stated in the articles of incorporation, "To provide trained nurses to visit and care for the sick poor and those of limited means, who are otherwise unable to secure skilled attendance; to instruct such families in the care of the sick in their homes; and to inculcate the principles of simple sanitation and hygiene." This is a very simple statement, and a very comprehensive one. If it be analyzed, and its ultimate effect determined, it means that you wish to instruct people how to live, and when life or happiness is threatened, to assist at restoration, for much of sickness is preventable and due to ignorance. "Inculcation of the principles of simple sanitation and hygiene" means the prevention of disease.

The report of the first year shows that you have in employ a visiting trained nurse, a supply room, and a palpable treas-

ury, with a balance on hand to justify the extension of the work. It will soon be necessary to employ additional nurses, and the demand will come for constant attendance of certain cases in the home. Maternity and fever cases, and the quarantine incident upon contagious diseases need uninterrupted attendance, and the daily visit will be found inadequate. To meet this want the Association may consider the feasibility of instructing available young women for certain kinds of attendance upon the sick. In a process of logical evolution it will be found that three or four visiting trained nurses will be employed, and a house obtained for their residence. This house may be the headquarters of the Association, where telephone and other calls may be received and supplies kept in stock. The young women who are being trained may report at this house for instruction to be given by the head nurses. The instruction includes the care of the room and the care of the patient. For the former the pupil is to understand what is required in ventilation, temperature, cleanliness and order; she is to be particularly instructed in the making and care of the bed. The care of the patient includes all manipulations, indirect or direct, of the person. The pupil should know perfectly the technique of administering different forms of bed baths; she should be able to give douches and enemas and to use the catheter; to take the pulse and temperature, to observe the discharges, to prepare and cook a few simple dishes and administer food; to understand enough of weights and measures and common drugs so that she may administer medicines, and she should be taught how to record on the charts the events of the day so that an intelligent report may be made to the physician. She should understand the principles of asepsis and antisepsis and the management of uncomplicated labor. Finally, she should be taught the essentials of first aid to the injured, including the symptoms and treatment of shock, hemorrhage, fractures, dislocations, convulsions, fainting and poisoning, burns and gun-shot wounds. She should be ready to act in case of fire and have some practice in the simpler methods of bandaging.

Some of the teaching should be done by the senior trained nurses in the headquarters house; the rest of it is necessarily given at the bedside of the patient. When pupils are in attendance at the homes of the sick, the visiting nurse calls once

or twice each day, as conditions require, criticises and directs her work, and, if necessary, assumes the management of some crisis or emergency. Theoretical knowledge of anatomy, physiology, or other scientific branches is not essential. The plan is to educate women to carry out practically and intelligently certain required manipulations needed in nearly every case of sickness. One or two text-books may be used, and recitations upon them conducted by the nurse. Students of this class must not be expected to rely too much upon lectures. They are not mentally equipped to receive instruction in this way. Yet a course of lectures by physicians lends dignity to the school and carries with it an acquaintance with the personality and methods of thought of the physicians, which may be regarded as an element in the education of the pupils. I am not prepared to say with positiveness how long the period of instruction should be. Personally I feel that two years would be a proper requirement. Possibly this might be shortened, but this question is to be determined with caution, and no short or easy road to learning should be considered. At the end of the period of instruction the Association should grant a certificate stating the character of the work done by the recipient, and commending her as a qualified "attendant upon the sick," or "certified nurse." The word "attendant" emphasizes the distinction between this training and that of the graduate hospital trained nurse, but may not prove altogether acceptable. The marketable value of the services of an "attendant upon the sick," under the present conditions, is from ten to fifteen dollars a week. The capable young woman who feels that the compensation is adequate, need have no fear of lack of employment. The availability of nurses of this class will extend and popularize the general work without embarrassing the hospital graduate. But these nurses must know their business! There should be no compromise of efficiency with expediency. Nor need this department be regarded as wholly charitable. The income from the work of the pupil nurses will prove of no little assistance to the Association.

The suffering of humanity is attributable to two causes, ignorance and sickness, and the latter is largely incident upon the former. For many years the medical profession struggled against the public offenses which resulted in typhoid fever,

conditions which required legislation for their correction, and has lately given the impetus to movements for the suppression of other preventable diseases. The extension of work of this kind has been enthusiastically undertaken by public spirited citizens and by charitable organizations. Physicians, perhaps true to the traditions of their profession, move quietly and unostentatiously, and avoid such high-sounding phrases as "crusades and propagandas." These energetic public movements however, which share the honors of newspaper notoriety with politics and crime, will accomplish much for the public good. But the ultimate result depends almost wholly upon what is done in the homes of the poor, and no agency is so effective as that which sends a competent nurse to relieve the suffering entailed by sickness. Your nurses will find demoralized homes. They will often find adequate financial resources improperly or wastefully used. They will gain the confidence and gratitude engendered by the relief of distress, and fortified by the friendship and confidence thus acquired, will become missionaries to instruct ignorant people in the simple art of living. This is the true significance of that article of your constitution which provides for the inculcation of "the principles of simple sanitation and hygiene." How far tuberculosis and blindness and other deadly scourges may be prevented is only to be revealed by the results, but there need be no fear that results will not repay manifold the efforts made to achieve them.

In a book entitled "East London," Walter Besant has described with the facile pen of a novelist, the restricted, toilsome and almost barbarous life of that forlorn district known more widely as Whitechapel; to the credit of the world's metropolis, it must be said, as it was, and not as it is, under the influences of modern philanthropy. He tells of a young medical man, who, some thirty years ago, began the practice of his profession in Ratcliffe. "He became aware presently that the death rate among the children was frightful. There was no hospital nearer than the London hospital in the Whitechapel road, and that was two miles away; there were no nurses to be obtained and there were no appliances; if a child was taken ill it had to lie in the one room occupied by the whole family, without ventilation, without proper food, without skilled care, without medicines. Therefore in most cases

of illness the child died." This young physician found a rickety old warehouse and converted it into a hospital for children. "With his slender funds he got a few beds and quickly filled them. He was physician, surgeon, dispenser, druggist, everything; his wife was nurse and everything else. Together these two devoted people started their hospital. It grew, it became known; money began to come in; other doctors and nurses were taken in; all the rooms—there were many—were filled; the children began to recover. Presently the house became so prosperous that it was resolved to build a separate children's hospital, which was done. But for the founder this crown of his labors came too late. The work killed him before the new hospital was completed; one of the wards, the Heckford Ward, is named after the man who gave all his strength, all his mind, all his knowledge, all his thoughts; who gave his life and his death; who gave himself, wholly and ungrudgingly to the children. He gave his own life to stay the hand of death."

There are probably no such districts of misery with us, at any rate, in our smaller cities. But isolated instances are not wanting, and many homes of ignorance and privation with attendant disease await the helping hand you are now prepared to extend. There is an awkward Latin phrase, *vis medicatrix naturae,* which physicians like to use. It means the ability of the body to resist disease, and its natural tendency to recover health. Without it the human race would have iong ago been extinct. Upon this *vis naturae* the physician relies more than upon all of his remedies; indeed, in modern practice, the remedies are used for its conservation rather than to meet the disease by direct treatment. How much better to maintain this inherent vital force in its integrity than to permit a gradual encroachment, when, weakened or destroyed, the victim succumbs to any morbid process which assails him.

To the Latin we are also indebted for another word of greatest significance. *Sanitas* meant soundness of body and soundness of mind. In modern science sanitary measures are all those which tend to secure health, not only of the individual but of the community, and the greatest of these measures is prevention of disease. A most propitious omen is the foundation of your Association upon the rock of "simple sani-

tation." To live up to the purpose of this guiding principle, to ignore all temptations of enterprises, no matter how promising or seductive, which may appear contributory, to adhere strictly to the duty of promoting good living, will open vistas of activity, which will engage every resource.

No scheme offers so great opportunity for the alleviation of distress, the promotion of health and happiness, and elevation of the community, as a guild of philanthropic women devoted to the inculcation of the principles of "simple sanitation."

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## Editorial

The reign of Henry VIII. was a momentous one for the craft. In their Hall still hangs the famous picture of the great monarch by Holbein, and on their table stands the great grace cup presented by him on the union of the two Companies in the year 1540. We are accustomed to think of him as the great reformer of men's souls, but to the barber-surgeons he appears in another form. The dedication of the painting may be translated as follows:—

Grievous the Plague had ravished England's realm,
Rending the souls and mortal frames of men;
God from on high repenting of the scourge,
Sent thee to work the good physician's part.

Nor was this altogether undeserved. He seems to have made an honest attempt to put some limit to the boundless quackery which doubtless still sent many of his liegemen "the way of all flesh." That he did not succeed in persuading our forefathers to confine their trust to the duly qualified barber-surgeons was a result for which perhaps the orthodox surgery of the day must take its share of responsibility.

J. Malet Lambert

*Two Thousand Years of Gild Life.*

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**Bye-Paths of History.**

History in the abstract teaches of the struggles and triumphs of government and the progress of nations. It is the record of civilization from its dawn toward the high ideal which will mark the ultimate attainment of humanity. From the huge volume of affairs are selected only those incidents which indicate

epochs or illustrate some truth, and the details of the customs and thought of communities are either lost or implied in the results or consummation. Minor affairs, each of which contributes its due share to the advancement of happiness, are found only in legends or in the records of society. Magna Charta, for instance, reveals the final protest of an injured people, but the sufferings of generations and the privations and distresses of classes of people are implied and not described in the accounts of feudal disagreements which resulted in that document. So with medical history. To health may be ascribed the permanence or supremacy of nations, and to abuses of health may be traced their decadence and fall. But medical history has had no general recognition, and too little study on the part of physicians. Only during the last generation have the sources of medical knowledge been actively sought, and in that time only enough to reveal the great significance of discoveries, not only in the evolution of the science of health, but in the influence such knowledge bears upon the welfare of a nation.

These reflections follow the perusal of two books recently published.* Under the title, "Epoch-making Contributions to Medicine, Surgery and the Allied Sciences," Dr. C. N. B. Camac has collected in one volume the original dissertations on "Antisepsis," by Lord Lister; "Circulation of the Blood," by William Harvey; "Percussion of the Chest," by Leopold Auenbrugger; "Auscultation and the Stethoscope," by R. T. H. Laënnec; "Vaccination against Smallpox," by Edward Jenner; "Anesthesia," by Wm. T. G. Morton, and "Puerperal Fever," by Oliver Wendell Holmes. These invaluable papers are to be found, of course, where first published, but the collection in one volume carries a significance which cannot well be disregarded. It creates a symposium of the masterpieces to which may be ascribed the therapeutic domination of modern medicine, and the clinical value of these investigations may well arrest attention in these days of pathological and diagnostic speculation.

The origin of Dr. Camac's book is suggestive, particularly to

**Epoch Making Contributions to Medicine, Surgery and the Allied Sciences.* Being Reprints of those Communications which first Conveyed Epoch-Making Observations to the Scientific World. Together with Biographical Sketches of the Observers. Collected by C. N. B. Camac, A.B., M.D. With portraits. Philadelphia and London: W. B. Saunders Company, 1900.

*Surgical Memoirs and Other Essays.* By James G. Mumford, M.D., instructor in surgery, Harvard Medical School; visiting surgeon to the Massachusetts General Hospital; Fellow of the American Surgical Association; etc., etc. Illustrated. New York: Moffat, Yard & Company, 1908.

teachers of medicine. He followed the custom of presenting to his students the earliest scientific article upon the subject under consideration. He found that interpretations of these articles by teachers had been insufficient and misleading, and that the originals were sufficiently succinct to withstand even the searching analysis of modern thought. As an example, Jenner's definite direction regarding the technique of vaccination, if adhered to, would prevent many of the infections and shocking ulcerations seen even in our own day. Again, in Laënnec's writings is to be found much that would clear the confusion regarding physical signs which teachers to-day discuss without even referring to the observations of this master-mind. The need of this plan of work is imperative to any one who aims at thoroughness. Dr. Camac quotes Professor Ostwald, who writes of his "wolfish hunger" when a student, and of "devouring" the original treatises of the masters. Professor Ostwald concluded: "It is not alone the requirements of the professor which are satisfied by this study of the old literature. By following the scientific disputes of the past (and indeed no period has been free from these disputes), a kind of personal acquaintance with the character and manner of thought of the writers is involuntarily obtained, along with a practical experience of the problems of science. * * * The reader acquires a lively sense of scientific and personal style; at times he is annoyed by the prolixity and vagueness of one writer or pleased by the concise clearness of another, and endeavors to attain in his own works that which has been pleasing in the works of others. In short, a large part of that gain which accompanies regular intercourse with talented and learned men may be obtained by such an intimate acquaintance with a collection of old scientific journals. * * * Thus the journals with their long and tiresome rows of uniform volumes * * * have proved to be a most useful, and at the same time a most interesting aid for all kinds of work in any way connected with science. In our age, which is turning so energetically from a narrow specialism to a broader conception of all scientific problems, the use of this aid will become more and more general; and what up to the present has been a luxury for a few will become a necessity for everybody."

Another volume, a fitting companion to the "Epoch-making Contributions," is a series of addresses entitled, "Surgical

Memoirs and other Essays," by Dr. James G. Mumford, of Harvard. Dr. Camac wrote of the discoveries and Dr. Mumford writes of the discoverers. In a "Narrative of Surgery," he gives biographical sketches of Hippocrates, Galen, Vesalius, Ambroise Paré, Albrecht von Haller, John Hunter, and Joseph Lister. There are also sketches of Sir Astley Cooper, Sir Benjamin Brodie, John Collins Warren, Jacob Bigelow and Samuel Howe; and addresses upon "Teachings of the Old Surgeons," "Studies in Aneurism," the trained nurse and "History and Ethics in Medicine."

These biographical sketches are delightful, even romantic. Read, for instance, the unique career of Samuel Gridley Howe, "the apostle of freedom." Everyone knows of his great work with Laura Bridgman and the Perkins Institution for the Blind. Few know that he was a physician, that he began his career by espousing the cause of Greece against Turkey, and dubbed "Byron-mad," rushed into the front of a Grecian mob and of guerilla warfare, and divided his attention between "killing Turks, helping Greeks, and taking care of himself." "I could carry my gun and heavy belt with yataghan and pistols all day long, clambering among the mountain passes, could eat sorrel and snails, or go without anything, and at night lie down on the ground with only my shaggy Capot, and sleep like a dog." Of him Whittier wrote as "The Hero." In France at the second Revolution Lafayette persuaded him to undertake a mission to Poland in her death struggle with Russia, and for this he spent five months in a cell in Berlin. In these five months he studied some new German books on the education of the blind, and set about translating them. In 1869, in the difficulties of the Cretan insurrection, he "raised a large sum of money, loaded a ship with supplies, and visited Crete. His work there was delicate and hazardous, but he completed it, and saved thousands from starvation. He visited the Greek mainland, and found himself one of the immortals." Of this wonderful man, so little known to the members of his profession to their shame, be it said, Senator Hoar spoke: "His is one of the great figures in American history; I do not think of another who combines the character of a great reformer, of a great moral champion, of a great administrator of great enterprises, requiring business sagacity and wisdom as well as courage, always in the van, with the character also of a Knight errant who

crossed the sea, like the Red Cross Knight of old, to champion the cause of liberty in a distant nation. There was never on the soil of America, fertile as that soil has been of patriots and heroes and lovers, a more patriotic hero, a more loving Knight."

An aged veteran, accustomed to visit a military school, forgetful of a tendency to repetition, invariably addressed the boys upon the three rules of a soldier: "The first is 'drill;' the second is 'drill;' the third is drill!'" Dr. Mumford describes the daily habits and personal characteristics of the men of whom he writes, and the revelation is that their lives were given over to WORK! John Hunter "was content with four hours of sleep, scanty rations and little play." "To rise at four, to dissect for two hours before breakfast, to demonstrate for his fellow students all the morning, to hear lectures and assist at autopsies until dinner, and to dissect again until near midnight," were for many years the daily tasks of Sir Astley Cooper. Sir Benjamin Brodie "broke down from overwork, and was forced to take a long vacation." John Collins Warren's "habit was to rise early on winter mornings and breakfast by candle light; then he went out and made professional visits until one o'clock, when he dined, giving himself about ten minutes for that function; he saw patients until two, when he lay down for an hour's rest. In the latter half of the afternoon he made further visits, supped at seven, and spent his evenings until two o'clock in the morning at his books and in writing. On hospital and lecture days his labors were still further prolonged." Dr. Mumford here interjects the naïve remark that "it was not an easy, self-indulgent life." Jacob Bigelow had "an inexhaustible capacity for work." In these neurasthenic days we may take note of the harmlessness of work, for in none of these men was life cut short, except in the case of John Hunter, whose tragic end from the rupture of an aneurism during a heated debate upon hospital policy, is well known. He was sixty-five. Howe was seventy-five; Cooper seventy-three; Brodie seventy-eight; Warren seventy-eight, and Bigelow ninety-two years of age.

Dr. Camac and Dr. Mumford have done a distinct service in presenting these volumes. Every physician should have them and read them. Thought and reflection will attend the reading, beyond the musings of a midsummer reverie.

# Public Health

Edited by Joseph D. Craig, M. D.

DEPARTMENT OF HEALTH—ALBANY, N. Y.

ABSTRACT OF VITAL STATISTICS FOR AUGUST, 1909

*Deaths*

| | 1905 | 1906 | 1907 | 1908 | 1909 |
|---|---|---|---|---|---|
| Consumption | 15 | 23 | 19 | 20 | 19 |
| Typhoid Fever | 2 | 2 | 2 | 4 | 5 |
| Scarlet fever | 0 | 0 | 0 | 0 | 0 |
| Measles | 0 | 0 | 0 | 0 | 0 |
| Whooping-cough | 1 | 2 | 3 | 0 | 3 |
| Diphtheria and croup | 2 | 1 | 9 | 2 | 1 |
| Grippe | 0 | 0 | 0 | 0 | 0 |
| Pneumonia | 4 | 2 | 0 | 3 | 3 |
| Broncho-pneumonia | 1 | 2 | 3 | 1 | 0 |
| Bright's disease | 10 | 15 | 15 | 14 | 16 |
| Apoplexy | 6 | 4 | 9 | 6 | 9 |
| Cancer | 13 | 10 | 6 | 9 | 11 |
| Accidents and violence | 20 | 9 | 5 | 12 | 10 |
| Deaths over 70 years | 24 | 32 | 19 | 15 | 31 |
| Deaths under 1 year | 24 | 32 | 38 | 38 | 41 |
| Total Deaths | 153 | 170 | 171 | 149 | 171 |
| Death rate | 18.00 | 20.00 | 20.12 | 17.53 | 20.12 |
| Death rate less non-residents | 16.47 | 18.37 | 16.71 | 15.18 | 16.59 |

*Deaths in Institutions*

| | 1905 | | 1906 | | 1907 | | 1908 | | 1909 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Resident | Non-resident | Resident | Non-resident | Resident | Non-resident | Resident | Non-resident | Resident | Non-resident |
| Albany Hospital | 12 | 9 | 10 | 15 | 6 | 9 | 9 | 8 | 11 | 11 |
| Albany Penitentiary (County jail) | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Albany Orphan Asylum | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| County House | 4 | 0 | 6 | 1 | 2 | 1 | 3 | 1 | 0 | 3 |
| Homeopathic Hospital | 2 | 1 | 2 | 1 | 0 | 1 | 2 | 1 | 6 | 4 |
| Hospital for Incurables | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| House of Shelter | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Little Sisters of the Poor | 1 | 0 | 2 | 0 | 4 | 0 | 1 | 0 | 2 | 0 |
| Public Places | 0 | 1 | 1 | 2 | 1 | 3 | 3 | 1 | 0 | 1 |
| St. Margaret's Home | 4 | 2 | 0 | 0 | 6 | 7 | 5 | 3 | 1 | 3 |
| St. Peter's Hospital | 6 | 0 | 4 | 0 | 0 | 7 | 3 | 2 | 4 | 2 |
| Home for Aged Men | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| House of Good Shepherd | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Austin Maternity Hospital | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 |

| | |
|---|---|
| Births | 106 |
| Still Births | 10 |
| Premature births | 1 |

### Bureau of Plumbing, Drainage and Ventilation

In the Bureau of Plumbing, Drainage and Ventilation, there were one hundred forty-six inspections made of which fifty-five were of old houses and ninety-one were of new houses. There were sixty iron drains laid, thirty-seven connections to street sewers, thirty-eight tile drains, one urinal, sixty-seven cesspools, one hundred six wash basins, one hundred fifteen sinks, one hundred bath tubs, one hundred three washtrays, one hundred forty-two tank closets. There were one hundred forty-eight permits issued, of which one hundred two were for plumbing and forty-six for building purposes. Sixty-seven plans were submitted of which eigbteen were of old buildings and forty-nine of new buildings. There was one house tested with blue or red and there were forty-two water tests. Twenty houses were examined on complaint and twenty-five were re-examined. Fifteen complaints were found to be valid and five without cause.

### Bureau of Contagious Disease

Dr. Guyer, Contagious Disease Inspector, is seriously ill at the Hospital and his report for this month will accompany the report for the month of September.

*Bender Report on Tuberculosis*

| | |
|---|---|
| Positive | 12 |
| Negative | 18 |
| Failed | 0 |
| Total | 30 |

*Tuberculosis*

| | | |
|---|---|---|
| Living cases on record August 1, 1909 | | 383 |
| Reported during August, 1909: | | |
| By telephone | 0 | |
| By Bender | 9 | |
| By card | 5 | |
| | 14 | |
| Dead cases reported by certificate | 8 | |
| | | 22 |
| | | 405 |
| Dead cases previously reported | 10 | |
| Dead cases not previously reported | 8 | |
| | | 18 |
| Living cases on record September 1, 1909 | | 387 |
| Total tuberculosis death certificates filed August, 1909 | | 18 |

## Bureau of Pathology

*Bender Laboratory Report on Diphtheria*

| | 1905 | 1906 | 1907 | 1908 | 1909 |
|---|---|---|---|---|---|
| Initial Positive | 4 | 9 | 35 | 14 | 11 |
| Initial Negative | 6 | 19 | 20 | 15 | 17 |
| Release Positive | 1 | 5 | 44 | 17 | 29 |
| Release Negative | 6 | 23 | 165 | 26 | 49 |
| Failed | 0 | 4 | 5 | 0 | 0 |
| Total | 17 | 60 | 269 | 72 | 106 |

Examination for Tuberculosis:

| | | | |
|---|---|---|---|
| Initial positive | 2 | 4 | 11 |
| Initial negative | 4 | 7 | 17 |

## Bureau of Markets and Milk

| | |
|---|---|
| Market re-inspections | 47 |
| Public market inspections | 18 |
| Fish markets inspected | 1 |
| Fish peddlers inspected | 2 |
| Milk wagons in clean condition | 41 |
| Butter fats below 3% | 0 |
| Butter fats from 3 to 3.5% | 6 |
| Butter fats from 3.5 to 4% | 31 |
| Butter fats over 4% | 4 |
| Solids below 12% | 1 |
| Solids from 12 to 12.5% | 5 |
| Solids from 12.5 to 13% | 10 |
| Solids over 13% | 25 |

## Bureau of Milk.

| | | Butter Fats | | | | Solids | | | |
|---|---|---|---|---|---|---|---|---|---|
| No. | Specific Gravity | Under 3% | 3 to 3.5% | 3.5 to 4% | Over 4% | Under 12% | 12 to 12.5% | 12.5 to 13% | Over 13% |
| 3 | 33.1 | .. | 1 | .. | .. | .. | 1 | .. | 1 |
| 27 | 32.1 | .. | .. | 1 | .. | .. | .. | 1 | .. |
| 33 | 35.2 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 48 | 34.4 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 51 | 33.4 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 60 | 34.2 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 65 | 33.1 | .. | .. | 1 | .. | .. | .. | 1 | .. |
| 68 | 35.3 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 80 | 32.1 | .. | .. | 1 | .. | .. | .. | 1 | .. |
| 83 | 33.1 | .. | .. | 1 | .. | .. | .. | 1 | .. |
| 95 | 35.3 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 96 | 34.2 | .. | .. | .. | 1 | .. | .. | .. | 1 |
| 112 | 34.4 | .. | .. | 1 | .. | .. | .. | .. | 1 |

## Bureau of Milk

| No. | Specific Gravity | Butter Fats: Under 3% | 3 to 3.5% | 3.5 to 4% | Over 4% | Solids: Under 12% | 12 to 12.5% | 12.5 to 13% | Over 13% |
|---|---|---|---|---|---|---|---|---|---|
| 119 | 32.3 | .. | .. | 1 | .. | .. | .. | 1 | .. |
| 120 | 31.1 | .. | 1 | .. | .. | 1 | .. | .. | .. |
| 127 | 35.2 | .. | .. | .. | 1 | .. | .. | .. | 1 |
| 128 | 35.3 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 131 | 33.1 | .. | 1 | .. | .. | .. | 1 | .. | .. |
| 144 | 33.4 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 147 | 34.2 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 152 | 34.2 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 153 | 33.1 | .. | .. | 1 | .. | .. | .. | 1 | .. |
| 160 | 33.1 | .. | 1 | .. | .. | .. | 1 | .. | .. |
| 161 | 34.2 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 165 | 34.2 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 166 | 34.1 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 169 | 33.1 | .. | 1 | .. | .. | .. | .. | 1 | .. |
| 170 | 34.2 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 159 | 33.1 | .. | 1 | .. | .. | .. | 1 | .. | .. |
| 174 | 34.2 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 176 | 34.2 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 178 | 34.1 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 179 | 31.4 | .. | .. | 1 | .. | .. | .. | 1 | .. |
| 181 | 35.3 | .. | .. | .. | 1 | .. | .. | .. | 1 |
| 184 | 33.1 | .. | .. | 1 | .. | .. | .. | 1 | .. |
| 185 | 34.2 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 187 | 33.1 | .. | .. | 1 | .. | .. | .. | 1 | .. |
| 191 | 34.4 | .. | .. | .. | 1 | .. | .. | .. | 1 |
| 193 | 31.3 | .. | .. | 1 | .. | .. | 1 | .. | .. |
| 357 | 33.1 | .. | .. | 1 | .. | .. | .. | .. | 1 |
| 387 | 34.2 | .. | .. | 1 | .. | .. | .. | .. | 1 |

## Miscellaneous

| | |
|---|---|
| Mercantile certificates issued to children | 11 |
| Factory certificates issued to children | 12 |
| Children's birth records on file | 23 |
| Number of written complaints of nuisances | 54 |
| Privy vaults | 10 |
| Plumbing | 15 |
| Other miscellaneous complaints | 29 |
| Total number of dead animals removed | 1,358 |
| Cases assigned to health physicians | 51 |
| Number of calls made | 166 |

# Medical News

## Edited by Arthur J. Bedell, M. D.

Albany Medical College.—The Seventy-ninth Session of the Albany Medical College was opened Tuesday morning, September 21, 1909, by the Dean, Professor Samuel B. Ward. The Introductory Lecture was given by Professor Frederic C. Curtis, and remarks were made by the Chancellor of Union University, Rev. Dr. Charles A. Richmond. The program of college exercises was announced by the Registrar, Professor Willis G. Tucker. The registration of students promises to be larger than usual.

Albany Guild for the Care of the Sick.—Department of Visiting Nursing.—Statistics for August, 1909. Number of new cases, 134; *classified as follows:* Dispensary patients receiving home care, 36; district cases reported by health physicians, 5; charity cases reported by other physicians, 29; moderate income patients, 64; old cases still under treatment, 116; total number of cases under nursing care during month, 250. *Classification of diseases for the new cases:* Medical, 53; surgical, 11; gynecological, 4; obstetrical under professional care: mothers, 32; infants, 28; eye and ear, 0; skin, 2; throat and nose, 0; dental, 0; contagious diseases in the medical list, 13; removed to hospital, 11; deaths, 9.

*Special Obstetrical Department.*—Number of obstetricians in charge of cases, 1; medical students in attendance, 1; guild nurses in attendance, 4; patients, 1; visits by attending obstetrician, 1; visits by students, 7; visits by nurses, 17; total number of visits for this department 25.

*Visits of Guild Nurses* (all departments): Number of visits with nursing treatment, 1,273; for professional supervisions of convalescents, 265; total number of visits, 1,538; cases reported to the guild by 2 health physicians and 35 other physicians, graduate nurses 6, and pupil nurses 6 on duty.

*Dispensary Report.*—Number of clinics held, 88; number of new patients, 155; number of old patients, 438. *Classification of clinics held:* Surgical, 11; nose and throat, 4; eye and ear, 12; lung, 13; nervous, 5; skin and genito-urinary, 7; stomach, 1; medical, 12; children, 13; gynecological, 9.

Ninth Annual Conference of Health Officers is to be held in Rochester, N. Y., on November 10th, 11th and 12th. Among those who have been invited to address the Conference may be mentioned Dr. M. J. Rosenau, of the Harvard School of Sanitary Science; Dr. Chas. O. Probst, of the Ohio State Board of Health; Prof. Sedgwick, of the Massachusetts Institute of Technology; Dr. Marshall L. Price, of the Maryland State Board of Health; Surgeon-General Wyman; Past Assistant Surgeon Lumden, of the U. S. Public Health and Marine Hospital Service; and Dr. Cressy L. Wilbur, chief statistician of the United States Census Bureau.

Medical Society of the County of Schenectady.—A regular meeting of the Medical Society of the County of Schenectady was held at the Mohawk Golf Club, Troy Road, on Wednesday, September 15th, 1909, when Dr. Edward J. Mountain, of New York City, read a paper on "A Study of the Arch of the Human Foot; Its Weakness and Support."

Medical Society of the County of Montgomery held a clam bake on Wednesday, September 8th, at Dorn's Club House. Members of the Society and invited guests from adjoining counties were present and thoroughly enjoyed themselves.

American Association of Clinical Research.—A meeting of physicians and surgeons interested in Scientific Clinical Research is called for Wednesday, October 27, 1909, at John Ware Hall, Boston Medical Library, No. 8 Fenway, Boston, Mass. The meeting will come to order at 10 a. m., and carry its sessions through Wednesday, and if necessary, through Thursday and Friday.

The object of the meeting is: first, to establish an American Association of Clinical Research; secondly, to establish clinical research on an incontrovertible scientific basis in hospitals; and thirdly, to institute an American Journal of Clinical Research, in which the work of the members of the American Association and of others doing clinical research work in a scientific manner shall be published.

Albany Hospital Tuberculosis Pavilion.—In the near future ground will be broken for what is to be known as Pavilion H, for the treatment of tuberculosis patients.

Tuberculosis Notes.—The National Association for the Study and Prevention of Tuberculosis has recently sent out a circular letter calling attention to the fact that many thousands of hopeless tuberculosis cases are sent to the Southwest whereas if they stayed at home the family would be better able to support themselves and the disease would be as efficiently treated. It is urged that all physicians take these facts in consideration before advising long and questionable journeys.

This year the county fairs are being visited and the tuberculosis exhibit is more carefully explained to the thousands who attend.

The Workman's Circle, a national fraternal insurance organization, will build and maintain a tuberculosis sanatorium at Liberty, N. Y.

On September 6, 1909, Button Day was celebrated in Albany, the proceeds of which amounting to $3,000, will be applied to the maintenance of the Tuberculosis pavilion of the Federation of Labor in that city.

For Sale.—The following things belonging to the late Dr. George Cox, are offered for sale. One buffalo robe—whole skin, $75.00; one carriage, $25.00; one cutter, $25.00. These may be seen at Thomson's Stable, Sheridan Ave., Albany, N. Y. Also, one funnel or philter, glass; one graduate, also glass; one large pestle and mortar, one small pestle and mortar, one pair of forceps, antitoxin syringe, alcohol lamp, glass; pocket case of instruments and physician's prescription scales.

Third District Branch of the Medical Society of the State of New York.—The Third Annual Meeting is to be held at the Court House, Hudson, N. Y., October 5, 1909. The following program is announced:

Tuesday Morning, October 5th, 1909.—11 A. M. Demonstration of the Management and Treatment of Delinquent Girls at the New York State Training School for Girls, by H. V. Bruce, M. D., Superintendent, A. T. Bingham, M. D., Resident Physician, T. Wilson, M. D., and H. L. K. Shaw, M. D., Managers. 12 Noon. Meeting of the Delegates in the Managers' Room at the Training School. 12.30 P. M. Lunch at the Training School.

Scientific Session, 2 P. M., at the Court House.—1. Address of the President, J. L. Archambault, M. D., Cohoes. 2. "Injuries to the Patella, with their Surgical Treatment," J. H. Mitchell, M. D., Cohoes. Discussion to be opened by W. G. Macdonald, M. D., of Albany, and D. W. Houston, M. D., of Troy. 3. "The Maideston Typhoid Epidemic and the Use of Bleaching Powder for Water Purification," W. P. Mason, M. D., Professor of Chemistry at the Rensselaer Polytechnic Institute, Troy. 4. "State Ownership of Municipal Water Supplies," Clark G. Rossman, M. D., Hudson. Discussion to be opened by Willis G. Tucker, M. D., Albany. 5. "Fatal Esophageal Hemorrhage from Swallowing Foreign Body," Percy G. Waller, M. D., New Baltimore. 6. "Case of Traumatic Esophageal Stricture in a Two-Year-Old Child, with Radiograph," G. W. Ross, M. D., Port Ewen. Discussion on papers 5 and 6 to be opened by A. H. Traver, M. D., Albany, and H. L. K. Shaw, M. D., Albany. 7. "Surgical Aspects of Intestinal Obstruction in Young Children," John H. Gutmann, M. D., Albany. Discussion to be opened by Edgar A. Vander Veer, M. D., Albany. 8. "The Present Status of the Treatment of Appendicitis," Mark O'Meara, M. D., Kingston. Discussion to be opened by J. B. Harvie, M. D., Troy. 9. "Toxemias of Intestinal Origin," Victor C. Meyer, M. D., Chief of Department of Physiological Chemistry, Bender Laboratory, Albany. 10. "Report of a Case of Amebic Dysentery, with Presentation of the Organism," H. W. Carey, M. D., Troy. Discussion of papers 9 and 10 to be opened by H. C. Gordinier, M. D., Troy. 5 P. M. Exercises in Memory of John T. Wheeler, M. D., Chatham, First Vice-President of the Medical Society of the State of New York. Addresses by Commissioner of Health, Eugene H. Porter, M. D., Rev. William J. Leggett, Albert Vander Veer, M. D., F. C. Curtis, M. D. Memorial Resolutions by Committee appointed by the Society: S. B. Ward, M. D., Chairman, H. C. Gordinier, M. D., and Andrew Mac Farlane, M. D.

Army Medical Corps Examinations.—The Surgeon-General of the Army announces that the War Department has appointed a permanent board to meet at Washington, D. C., for the preliminary examination of applicants for appointment in the Medical Corps of the Army in addition to the usual preliminary examination boards that are assembled at various Army posts throughout the United States from time to time. The board at Washington will probably hold its first session about September 7, 1909, and on such other dates thereafter as may be designated by the Surgeon General.

This should be welcome news to a number of young physicians who are desirous of entering the Corps and who do not wish to wait until the usual examinations are authorized; also to those who are near the maximum limit of age.

Physicians who are successful in the examinations by the Washington board will be given employment at Army posts, as their services are needed, as 1st Lieutenants, Medical Reserve Corps,—salary $2,000 per annum—until the next session of the Army Medical School, when they will be ordered to attend the School as "student candidates."

Full information concerning the examination can be procured upon application to the "Surgeon General, U. S. Army, Washington, D. C." The essential requirements to securing an invitation are that the applicant shall be a citizen of the United States, shall be *between* twenty-two and thirty years of age, a graduate of a medical school legally authorized to confer the degree of doctor of medicine, shall be of good moral character and habits, and shall have had at least one year's hospital training or its equivalent in practice.

The examination in subjects of general education (mathematics, geography, history, general literature and Latin) may be omitted in the cases of applicants holding diplomas from reputable literary or scientific colleges, normal schools or high schools, or graduates of medical schools which require an entrance examination satisfactory to the faculty of the Army Medical School.

The medical service of the Army permits of a great variety of general medical and surgical practice, besides affording opportunities for those specially qualified to engage in special work, such as sanitation, chemistry, pathology, microscopy and bacteriology.

All appointments in the Medical Corps are made with the rank of first lieutenant ($2,000). At the end of three years the officer is promoted to captain at $2,400 per annum, which, at the end of five years' service is increased to $2,640, etc. In addition to this, officers are furnished with quarters, medical attendance and medicines for themselves and their families, the privileges of the commissary, mileage at the rate of seven (7) cents a mile when traveling under orders, and allowed one month's leave per year with full pay, which may be allowed to accumulate to a maximum of four months; also the privilege of retirement. These allowances are estimated to add from $1,200 to $1,600 to the yearly compensation in the grades of First Lieutenant and Captain.

Applications for permission to take the examination may be filed with the War Department at any time. Unless the statement is made that the candidate desires to appear before the Washington board at or about a certain time, arrangements will be made to have him examined before the next board assembled in his vicinity.

Personals.—Dr. D. H. Cook (A. M. C., '73) has removed from 264 to 523 Clinton Ave., Albany, N. Y., where he will have office hours from 8–9, 2–3, 7–8.

—Dr. George G. Lempe (A. M. C., '88) has recently purchased a home at 702 Madison Ave., Albany, N. Y., although he will continue to have his office in his old home on Eagle St.

—Dr. Clement F. Theisen (A. M. C., '92) has entirely recovered from his recent operation for removal of an annoying appendix.

—Dr. Howard Travell (A. M. C., '94) has removed his office to 79 Madison Ave,. New York, N. Y.

—Dr. H. Judson Lipes (A. M. C., '97) is recovering from an operation from appendicitis performed some days ago.

—Dr. F. N. Guyer (A. M. C., '97) is convalescing from an appendectomy.

—Dr. H. E. Mereness (A. M. C., '74) is recovering from a very severe attack of typhoid fever.

—Dr. John H. Gutmann (A. M. C., '02) has moved from 198 Washington Ave., to 223 State St., Albany, N. Y.

—Dr. F. C. Conway (A. M. C., '06) has moved from South Pearl St. to 217 Madison Ave., Albany, N. Y.

—Dr. L. Herbert Gaus (A. M. C., '07) was appointed director of the Steuben County Laboratory of Corning, N. Y. and assumed charge Stptember 1st.

—Dr. M. D. Cronin (A. M. C., '07) after a year in St. Peter's Hospital and one in the Bender Laboratory has started practice in association with Dr. Thomas A. Ryan, at 47 Eagle St., Albany, N. Y.

—Dr. Nelson K. Fromm (A. M. C., '08) after a year as resident physician in St. Peter's Hospital is now associated with Dr. O. D. Ball, 690 Broadway, Albany, N. Y.

—Dr. Orla A. Druce (A. M. C., '09) is practicing at New Paltz, N. Y.

—Dr. Herbert D. Pease, formerly Director of the Hygienic Laboratory is now Director of the Department of Bacteriology of the Lederle Laboratories, New York City.

Married.—Dr. Stanton P. Hull (A. M. C., '08) and Miss Bessie Cowie were married at Meadowbrook, Berlin, N. Y., September 15, 1909.

—Dr. George Steven Silliman (A. M. C., '08) and Miss Anne Margaret McConnell, were married in St. Paul's Church, Aramingo, Philadelphia, September 1st, 1909. Dr. and Mrs. Silliman will reside at Westbury, Long Island, N. Y.

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Deaths.—Dr. Washington Akin (A. M. C., '58) died at his home in Troy, N. Y., August 31, 1909, aged 74.

—Dr. David C. S. Parkhill (A. M. C., '66) died at his home in Hornell, N. Y., July 20, 1909 from cerebral hemorrhage, aged 64.

—Dr. Pierson C. Curtis (A. M. C., '84) was run down by a Hudson Valley Trolley car and killed near his home, September 6, 1909.

—Dr. Russell Clute (A. M. C., '03) died at Amsterdam, N. Y., September 24, 1909.

# In Memoriam

## Washington Akin, M. D.

Dr. Washington Akin, one of the oldest physicians of Troy, died at his home on August 29, 1909. Dr. Akin had been in ill health for some time and his death was not unexpected. Dr. Akin was a native of Johnsonville, where he was born August 22, 1835. He received his preliminary education in the Cambridge academy, from which he was graduated in 1855. He then entered the Albany Medical college and received his diploma on December 31, 1858. He immediately went to Troy to practice his profession and in the following year was appointed city physician and attending physician and surgeon at the Troy hospital. While the Civil War was in progress Dr. Akin was appointed by Governor Morgan in 1862 as assistant surgeon of the One Hundred and Twenty-fifth New York Volunteers and performed good service. He was one of the surgeons who followed the lines in the battles of Gettysburg, Cold Harbor, Spottsylvania and the siege of Petersburg. He had the distinction of being present at the surrender of General Lee to General Grant at Appomattox. He returned to Troy to resume his practice at the close of the Civil war and has been actively engaged since. On November 8, 1865, he married Miss Margaret E. Blaisdell of Coeymans, daughter of Dr. Wesley Blaisdell and had one son and two daughters. Dr. Akin was a member of the Rensselaer County Medical Society and had served as president and secretary. He was also a member of the American Medical Association, the Troy Scientific Association and Post Willard, G. A. R., of Troy. He was an attendant at Christ Episcopal church, Troy, and served several years as vestryman. He held the position of jail physician of Troy for one term and was police surgeon for twelve years. He served as president of the Troy pension board and was examining surgeon of pensions for twenty years. At one time he was attending physician at the Marshall Sanitarium. Dr. Akin was of a genial disposition. The survivors are his wife and two daughters, Mrs. George F. Houghton of North Bennington, Vt., and Mrs. C. Harper Richardson of Pittsfield, Mass.

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## Pierson C. Curtis, M. D.

It is the sad duty of the Annals to record the death, in an automobile accident, of Dr. Pierson C. Curtis of Round Lake, N. Y. On the evening of September 5th, Dr. Curtis' automobile, which he was driving, was struck by an electric car at a crossing near Round Lake, and Dr. Curtis was killed almost instantly from a fracture of the skull and internal injuries. Dr. Curtis was reputed to be a careful driver, and if a lesson is to be derived from this accident, it is that he neglected to ascertain after one car had passed whether another followed or not. It appears that the regular electric car had passed on time, and was followed by a special, which cut the automobile in two.

Dr. Curtis was a graduate with the class of 1884, of the Albany Medical

College. He settled in Round Lake in June of the year of his graduation and has since been in active practice. He was highly esteemed, and his untimely death has created a loss which is greatly felt by the community in which he had lived and practiced for twenty-five years. He was about forty-five years of age and is survived by his wife.

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### Clair S. Parkhill, M. D.

Dr. Clair S. Parkhill, for more than thirty years one of the leading physicians of Hornell, died very suddenly on July 20, 1909, from heart trouble.

Dr. Parkhill was born in Howard, Steuben County, on November 15, 1842, the youngest son of David Parkhill. His early life was spent there, but at the age of fourteen he entered Haverling Academy at Bath. At the age of eighteen he entered Michigan University, where he remained for two years, and then returned to this State entering the Albany Medical College and was graduated in 1866.

He began the practice of medicine with his brother, Reuben F., at Howard, but in 1873 the partnership was discontinued, and he removed to what was then Hornellsville, but is now known as Hornell. He was of a very quiet and retiring disposition, always avoiding notoriety. Dr. Parkhill had been President of the Erie Railway Surgeons' Association, and of the New York and New England Association of Railway Surgeons. He was a staff surgeon of St. James' Mercy Hospital, and also a member of the board of trustees. He was president of the village in 1884, and was for four years a member of the Board of Education.

He married in March, 1867, Marjorie, daughter of Mr. and Mrs. William Rice, of Howard, and to them four children were born, one of whom, Mrs. Blake B. Babcock, survives.

Dr. Parkhill was a very conscientious and hard-working physician, one well loved by all his patients and a man who had the faculty of making friends. His loss is a great one not only to the profession but to his city.

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# Current Medical Literature

## REVIEWS AND NOTICES OF BOOKS

*Manual of the Diseases of the Eye for Students and General Practitioners.* By Charles H. May, M. D., Formerly Chief of Clinic and Instructor in Ophthalmology, College of Physicians and Surgeons, Medical Department, Columbia University, New York. Sixth Edition, Revised., with 362 original illustrations including 22 plates, with 62 colored figures. William Wood & Co., New York, 1909.

We have favorably reviewed the other editions of this admirable work in these columns and there is no better proof of its value than the fact that within nine years the book has gone through five editions and this, the sixth, appears revised and up-to-date, although not made more cumbersome. For the student and general practitioner it is one of the best we now have. A. J. B.

*Vaccines and Serum Therapy, Including a Study of Infections, Theories of Immunity, Opsonins, and the Opsonic Index.* By EDWIN HENRY SHORER, B. S., M. D., Assistant Professor of Parasitology and Hygiene, University of Missouri. St. Louis, Mo., C. V. Mosby Publishing Company, 1909.

From the fact that so much interest is devoted to the subject of vaccines and serum therapy at the present day, books on this subject are sought after with eagerness. I think this book particularly commends itself to the profession. The thing that strikes one most is the amount of material the author has succeeded in placing in such a small volume. His statements throughout are clear and concise. In the chapter devoted to Immunity he gives the leading theories of immunity including a very good description of the Opsonin theory. The opsonic index occupies a chapter and in this he reviews briefly the history of the opsonic index. Then he gives a careful and detailed account of the technique. Following this a chapter is devoted to criticisms and modifications of Wright's opsonic index determinations. The author deals with these criticisms in a very able and impartial manner, quoting modifications suggested by prominent investigators and the reasons for these modifications. The nature of the opsonins and their relation to leucocytes, stimulins and aggressins is dealt with at some length.

Vaccine therapy is given an important place in this volume. The history of vaccines is carefully reviewed. He fully described the preparation of bacterial vaccines and the control of the injections giving the dosage of the principal bacterial vaccines. Then a brief space is allotted to the individual infections. The last and what I consider the most important chapter in this book is devoted to serum therapy. He briefly mentions the work done by various investigators and deals at some length on anaphyloxis and then discusses anti-toxin, anti-bacterial sera, concluding with a brief but very clear description of the more important sera.

While this book may not be as complete as many on this subject, I think it will be found very valuable to the general practitioner who has not had the time to devote to this particular subject. I also think it would be very valuable to the medical student.

M. D. CRONIN.

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*Diseases of the Bones and Joints.* Clinical Studies. By JOEL E. GOLDTHWAIT, M. D., CHARLES F. PAINTER, M. D., ROBERT B. OSGOOD, M. D. Illustrated. Boston, U. S. A., D. C. Heath & Co., Publishers, 1909.

The title of this book would in itself serve to recommend the book to the medical profession. Diseases of the bones and joints are not at all well understood and any important work on that subject is welcomed by the profession.

There is no doubt in the mind of the reviewer that the present volume

is a most important addition to the knowledge of diseases of the bones and joints.

One of the general impressions received after a careful reading of the book is that it is something more than a compilation of previously known facts. Not only do the authors have a thorough knowledge of the subject in hand, a knowledge gained by experience; but they are original thinkers. One may or may not agree with their conclusions but the value of the work is unquestionable.

No attempt has been made to make this work an orthopedic surgery, nevertheless, the subject of diseases of the bones and joints has been presented in a very thorough manner. Throughout the book, everything is stated with a clearness that is not confusing. This is especially true concerning the sections on treatment. The reader is not confused by enumerations of varieties of treatment; but that treatment only is presented which, in the author's experience, is most valuable. Throughout the book, the various diseases and pathological conditions are illustrated by the citation of cases from the author's experience.

In discussing tuberculosis of the bones and joints, the authors believe that constitutional treatment is as important as local treatment. In the treatment of tubercular hip joint disease, they prefer fixation to traction and advocate strongly the use of osteotomy following the quiescent stage of the disease with deformity not only to relieve the deformity but to relieve the strain on the joints and so do away with an important factor in recurrence.

They urge a more careful study of the non-tubular joint cases stating that, "There is doubtless far greater loss to the individual, to the family and to the state as a result of the disabilities of chronic non-tubular joint disease than there is from any one of the ordinary acute infections from which mankind suffer."

The classification of non-tubular joint disease is new and interesting.

As an example of the thorough up-to-dateness of the work there is a chapter on psycho-therapy in joint cases.

Considerable space is devoted to a consideration of the pelvic articulations and to the shoulder, embodying the results of the important work on these joints by Dr. Goldthwait.

There is a chapter on the relation of abdominal aneurism to spinal symptoms and a chapter on Tabes Mesenterica. The closing chapter treats of the use of Plaster Paris.

J. McW. B.

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*Writing the Short Story.* A practical Handbook on the rise, structure, writing and sale of the Modern Short Story. By J. Berg Esenwein, A. M., Lit. D., Editor of Lippincott's Monthly Magazine. Hinds, Noble & Eldridge, New York.

This in an interesting book, and it is certainly a practical book. It sets forth the technique of the short-story with completeness and lucidity;

It is filled with illustrative matter, and has questions for study on the ground covered by the text. It is possibly a dangerous book, for evidently anyone studying it might become an acceptable short-story writer. Is this a desirable end? Why not? The hundreds of magazines must be filled. Everyone has his story to tell, if he has a mind to dig it up, inspect it, and properly set it down. Benson says it is no crime to write, even to write badly. There are worse ways of expending energy. But the story-writer who is familiar with this book will avoid many mistakes and know what he is doing.

W. M. G.

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*A Manual of Operative Surgery.* By Sir Frederick Treves, Bart., G. C. V. O., C. B., LL. D., F. R. C. S., Serjeant-Surgeon to H. M. the King, Surgeon-in-Ordinary to H. R. H. the Prince of Wales, Consulting Surgeon to the London Hospital; and Jonathan Hutchinson, F. R. C. S., Surgeon to the London Hospital. New (3rd) Edition, revised and rewritten. In two octavo volumes. Volume I, 775 pages, with 193 engravings and 17 full-page plates. Half-morocco, $6.50, *net.* Lea & Febiger, Publishers, Philadelphia and New York, 1909.

Operative Surgery by Sir Frederick Treves needs no introduction to the medical profession. The first and second editions of this important work have been out of print for some time and at the request of Sir Frederick Treves, Jonathan Hutchinson, F. R. C. S. has undertaken the responsibility of a complete revision of the manual to be published as a two volume third edition, Volume I of which has already been issued.

Volume I is divided into two parts:

I. General principles. II. Abdominal Operations.

Under the heading of General Principles the authors consider such subjects as: the condition of the patient; the operator; the operating theater and its fittings; instruments and accessories; elements of operative surgery and the after treatment of wounds.

It would be well for everyone contemplating surgical work to read this section on General Principles. Something of the character of the author's treatment of the subject can be seen in the opening paragraph of the book which consists of a quotation from Sir James Paget. "Never decide upon an operation, even of a trivial kind without first examining the patient as to the risks of his life. You should examine him with at least as much care as you would for a life insurance. It is surely at least as important that a man should not die or suffer serious damage after an operation, as that his life should be safely insured for a few hundred pounds."

In discussing "the operator" the author lays stress on the mental qualifications of an operator rather than on his actual manipulative dexterity. "Precision of knowledge, precision of judgment and pre-

cision of hand are all needed" instead of that condition of mind sometimes seen in an operator which the author styles "Surgical delirium."

Numerous plates with descriptive texts serve to make more instructive the chapter devoted to "The Operating room and its fittings." Considerable space is devoted to a consideration of operations in a private house.

In discussing instruments and accessories the author believes that the best suture material is silk worm gut and the best ligature material is kangaroo tendon; also that kangaroo tendon is the best material for buried sutures.

The greater part of Volume I, however, is devoted to abdominal operations. The author describes only what he considers, from his own experience, to be the best ways of performing the various operations and he seeks to avoid confusion by omitting the minute details of technique of individual surgeons.

Genito-urinary surgery is fully treated toward the end of the volume and the last four chapters are concerned with Surgery of the Rectum.

The work is beautifully bound and printed and contains seventeen color and halftone plates and one hundred ninety three illustrations.

J. McW. B.

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## MEDICINE

**Edited by Samuel B. Ward, M. D., and Charles K. Winne, Jr., M. D.**

*Septicemia with Acute Fibrino-Purulent Pericarditis and Hypopyon Iritis Caused by the Meningococcus.*

Charles W. Duval. *The Journal of Medical Research, Vol.* XIX, *No.* 2, *October,* 1908.

Only in a small number of cases has the meningococcus been found in the circulating blood, but a careful review of the literature of meningococcic septicemia seems to indicate that (1) septicemia due to this organism is always secondary to meningitis, (2) when it occurs it often gives rise to local lesions outside the meninges.

The writer reports the following case: A boy aged seven was suddenly seized with a typical attack of cerebro-spinal meningitis. A lumbar puncture was performed and the meningococcus was isolated in cultures from the spinal fluid as well as being found in smears. The patient died sixty-four hours after the first symptoms appeared. Autopsy showed the following conditions to be present: Acute epidemic cerebro-spinal meningitis, acute fibrino purulent pericarditis, right hypopyon iritis, subcutaneous hemorrhages. Cultures and smears made from the meninges, pericardium, heart's blood, and pus from the anterior chamber of the eye all showed the meningogoccus in pure culture.

The writer reviews the literature of meningococcic septicemia, which may be summarized as follows: The earliest reported case of meningococcic septicemia was that of Gwyn in 1899. This was a fatal case of meningitis complicated by arthritis (purulent). The organism was recovered from the blood and joints during life and at autopsy from the meninges. Including this first case there have been twenty-one cases in which the organism has been recovered from the blood during life by different observers, in two cases on two different occasions. One observer reports only ten positive results in forty-five cases examined, and another, one only in six cases. In these twenty-one cases, in fifteen the organism was also isolated in culture from other parts of the body either before or after death as follows: Joints six times (three during life, three after death), pericardium five times, heart valve one, pleura one, conjunctiva one. In smears they were found in two additional cases of pericarditis, irido cyclitis one, hypopyon iritis one. They have also been reported as having been found in several cases of broncho-pneumonia but these findings were probably incorrect, the reporters mistaking other organisms for the meningococcus, most of these cases having been so reported on morphological characteristics only.

The following conclusions may be drawn from this review of the literature: The fact that the organism has been isolated in such a small number of authentic meningitis cases would seem to indicate that it is only an occasional invader of the circulating blood. Even in the small percentage of instances in which this has occurred, it is worthy of special note that only a small number of colonies have developed, even though a large amount of blood has been taken for examination.

In almost every instance such cases have proved fatal, and the body has showed some form of extra meningeal lesion. These associated lesions have invariably been in the endothelial lined cavities, viz.: the joints, anterior chamber of the eye, pericardial, endocardial, and pleural cavities.

There is no proof that the complicating broncho-pneumonias are ever due to the meningococcus.

Apparently a general infection with the meningococcus is always secondary to an involvement of the meninges, since in all the reported cases where complete autopsies have been done, involvement of the meninges was found. There is no authentic case where the meningococcus has caused lesions outside the meninges in the absence of a preexisting meningitis.

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*Mucous Colitis.*

Ernest H. Harrison. *Lancet,* 1907, *V.* 173, *p.* 821.

This disease is not characterized by any active inflammatory process in the colon but there seems to be an over-activity of the mucous cells in the lining of the large intestine associated in some parts with atony, in others with spasticity of the muscular coats of the colon. The chief characteristic of the disease is the passage of mucous which has peculiar

properties of its own. All cases in which there are signs of ulceration of the colon or other evident local pathological lesion should be excluded from this diagnosis.

The author reports twenty-five cases. He defines the disease as a combined secretory and motor neurosis of the large intestine associated with abdominal pain.

The etiology is doubtful but there are indications that it is due rather to disease of the nervous system than to a local condition of the colon. It is more common in the upper classes and more common in females. It first makes its appearance in early adult life, nineteen of the author's cases occurring under forty years. Eighty-four per cent. of his cases suffered from constipation. Sixty-four per cent. showed marked instability of the nervous system in the form of neurasthenia, hysteria, etc. Twenty-four per cent. showed various reflex phenomena such as alternate flushings and coldness of the head and face, or of the feet, with excessive sweats and palpitation. These reflex phenomena frequently end by the patients going to stool or vomiting. There may be asthmatic attacks.

Only 12 per cent. of the author's cases showed enteroptosis. In 36 per cent. of the author's series there was some trouble with the pelvic organs. In certain cases the process may affect the appendix. Where the disease in appendix is only a part of the mucous affection of the rest of the intestine, operation will not cure the disease of the colon. In certain cases, however, true appendicitis seems to have preceded or even to have precipitated the onset of the trouble.

As the disease of itself is never fatal, post-mortem examinations have been limited. Most authors agree that the disease is usually unaccompanied by any anatomical lesion of the bowel. The mucous passed is hyalin, contains few cellular elements and no fibrin. It is tougher and more tenacious than ordinary mucous; often the adherent masses can only be removed by violent contractions that are usually accompanied by pain. Where pain is excessive there is probably also a sensory neurosis.

The author thinks there is a close analogy between the disease and asthma. As in a predisposed person a small focus of nasal irritation will produce asthma, so also in a patient with a nervous diathesis a focus of abdominal disturbance, manifold in type and often slight in character will produce the symptom-complex of mucous colitis.

Symptomatology.—During an attack the cardinal symptoms are the passage of mucus and abdominal pain. The character of the mucus varies as the author relates in detail. The pain may be colicky or a dull aching relieved by pressure. Abdominal examination reveals the facts that the wall is nearly always flabby. In the majority of cases there is deep tenderness over the sigmoid flexure. The transverse colon may be below the umbilicus; clinical examination is negative. Blood may be passed with the stool; at times there may be vomiting of blood. Between the attacks constipation and flatulence predominate. In none of the cases was the temperature above 99°, and in the majority the temperature was slightly subnormal. The clinical symptoms therefore do not point to an inflammatory origin.

Diagnosis.—The patient should be kept in bed and carefully watched for

some time, repeated examinations being made of the abdomen and stools. Digital and bimanual examination of the rectum should be made. Local conditions such as rectal polypi, carcinoma, tuberculous ulceration, actinomycosis and simple stricture should be excluded. In affections of the colon such as catarrhal colitis, ulcerative colitis and dysentery, diarrhea is a prominent symptom and all are associated with fever. Shiga's bacillus or amoeba may be present in dysentery.

Prognosis.—The disease practically never ends fatally and about 50 per cent. get well. The results would be better, in the author's view, if the condition were earlier recognized.

Treatment.—During the attack relief of the pain and constipation are necessary. Castor oil in half ounce doses three times a day, until the passage of mucus ceases. In other cases calomel may be used. Enemata of soap and water combined with olive oil have proved useful. Irrigation of the colon with ordinary warm water assists in the rapid separation of the mucus; at least two quarts should be employed. The patient should be kept in bed and hot applications applied to the abdomen as long as the pain and passage of mucus continues.

As to diet.—Nothing should be given during the first two hours of an attack until the urgent symptoms are relieved, then small quantities of peptonized milk should be given.

Opium should not be used. In obstinate cases operations have been recommended with a view of giving rest to the colon. Two have recently been tried, first a lateral anastomosis between the ileum and the sigmoid. A valve-like opening is made in the coccum into which a rubber catheter is placed and the wound is sewed up leaving the catheter in; by this means the colon is given complete rest and thorough irrigation of the large bowel may be performed. This operation has not been very satisfactory in its results, as the neurosis is not relieved and the nutrition suffers from cutting out so large an absorbing portion of the intestinal tract.

The second operation now being tried consists in opening the abdomen and bringing the appendix to the surface, suturing it in place. The distal end is removed and the appendix thus takes the place of the catheter in the first operation. Permanent results cannot be expected unless the neurosis is also treated, daily evacuation of the bowel secured, and any organic condition which might have a bad reflex effect is removed. A carefully selected diet of highly nourishing substances should be employed. Fermentation should be prevented if possible. Detailed histories of the cases follow.

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# ALBANY MEDICAL ANNALS

## Original Communications

### THE IMPORT OF EDUCATION.

*Introductory Address at the Opening of the Albany Medical College, September 21, 1909.*

By F. C. CURTIS, M. D.,

*Professor of Dermatology.*

*Gentlemen of the Medical Classes:*

Custom has established that at the beginning of the College year we should for once all meet together, in " the Pit " as you call this redolent old amphitheater of echoing memories, with the faces of March and Armsby above us and looking down upon you, while one of our number—among whom are some who once sat where you do—acts as the common spokesman. My predecessors of the Faculty who have addressed you on this introductory occasion have made the hour profitable by presenting their views on a varied range of topics, but seldom on a theme connected with what constitutes the subject of technical instruction; avoiding it doubtless from a merciful spirit, and conscious of the hours that lie ahead when you must receive from them, into the distending receptacles of your mental apparatus, the matter which makes, as each of us essays to contribute to it, the education which you are seeking here. For none of us is old enough to have lost the recollection of student days, of classroom life, of uncushioned benches, of a satiated mind which struggles sometimes with unresponsive effort to take in more. Consequently this opening hour, fixed by long usage in this Institution as one of formal introduction to the course of tuition, when the teaching body meets the student body, along with those of the Alumni and friends who may come to honor the occasion, has been one of greeting which for the Faculty I present, and for a word on any unwearying theme. Let the wedge begin to find entrance tomorrow.

An occasion of this sort gives vent to varied reflections. Not many weeks ago, at the opening of summer, when the world of nature about us had put on its new dress and all was pulsing with life and promise, the air was full of the Commencement chorus which swelled throughout the land. Glad hands of congratulation for attainment were extended, many wise words of counsel were spoken and there was much serious reflection upon the uppermost theme of the import and of the method of education. The graduate from school held the front of the stage and was the hero of the hour; he had won his goal and brought joy to the hearts of home, and we crowned him with leaves of bay.

Here today we start to lay a new course; we begin a new chapter in the annals of tomorrow. The heroes are prospective, the work of achievement all lies ahead. The occasion is comparatively inconspicuous. But it may have a significance quite like in kind yet altogether its own. The eager start, like a Marathon race save that in our case we expect you all to come in winners at the end, full of anticipation, of determination, and of joy in a struggle, may be just as auspicious as the finish; a beginning as a commencement. Either for that matter is only turning a new leaf. Students have had their preparatory years, graduates have to continue to be students. Those who left academic halls earlier in the year have very likely already begun to learn this. When we stop learning we stop growing and no one knows this better as to themselves than your teachers.

There is the spirit of a new day in every fresh enterprise. We are all the time finding ourselves on the edge of things and looking forward. Every day starts with a carte blanche, a fresh chance for a new record. Every undertaking, from the start on a plan which is to cover a lifetime to the writing of a prescription, brings its jeopardy, its tests, its concerns and apprehensions, its appeal to fortune, its consciousness of blind vision far forward. It may be happily fortified by a balance of faith in the stuff inside of us, and faith in a Divine power about us, with educative attainment in both, to bring us along a straight path to a happy outcome.

There is nothing finer than a start as a test of character; it involves a wise choice, a conscious capacity, a complacent assurance. Choosing a life work is a pretty serious adventure. Some of you come here today as beginners; I trust you may find

that you have made a wise choice; I have no doubt you will, for few who put their hand to a medical life turn back.

I hope, too, you will find that you have made a wise choice of your professional school. There are now many good schools of medicine; we of the faculty and alumni of this one feel a proper pride in the exhibit which the Registrar has made to appear on page 10 of the last catalogue.

Of fifty-one larger schools, having some fifty or more graduates, Albany was one of only three which had no candidates for medical license rejected in the examinations held by the examining boards of various States during 1905; fifty-six of our graduates were examined in seven different States and all passed successfully, while of the entire number from all these schools examined that year over fifteen per cent failed. In 1906, of thirty-seven of our men who came before State examining boards, one failed; in 1907, two of forty-three graduates, of classes from 1902 to 1907, failed; and last year forty-five of our graduates, from six classes, were examined in four States and all passed. Thus, of 181 men of all years from this College who have applied for State license in different States in the past four years, three only have failed to secure it, less than two per cent. This speaks well for both the school and for the alumni.

The chief use I can now make of this will be to point out the dependence of an educational institution upon its graduates for its reputation; you can draw your own inference as to the obligation that rests upon you to maintain it. And I ought to add a word for the undergraduates, because this high mark of 98 and a fraction for the College has not been secured by rigid and exacting elimination on the final test by the faculty, since at the end of the four years' course few who have been with us all through fail of graduating. We have been favored with good, earnest men, and they have gone out into their various communities after they left the College to do good work where their lot has cast them. I can testify from considerable observation among the men practicing medicine throughout this State to the uniform excellence and worthy standing of the graduates of the Albany Medical College.

I would like to have you who stand on the threshold get a sincere respect for Medicine. You are proposing to enter what is undoubtedly the oldest profession. At any rate the cure of the body and of the soul of their ills have had their protagonists,

often combined in one, from earliest history and among all men. I have no doubt that when Henry Hudson sailed up our river and dropped anchor near this place on that September day three hundred years ago, the trees beginning to deck themselves as now in autumn colors just as we are honoring the anniversary with colors and bunting today, there were practitioners of medicine among the Aborigines who gave him their wondering welcome. In some form or other medicine has been practiced for all time. The manager of a popular magazine, forecasting its purpose to make itself interesting, names seven things which are especially common interests, viz: love, hate, health, sickness, jealousy, dress and exhibitions of animal strength; he says that the average man will spend far more time thinking how to rid himself of a cold than in rejoicing over the triumphs of constitutional government in Turkey. To inquire after one's health is the universal formula of salutation. Sooner or later people find that wealth is an empty bauble compared with the possession of health. A healthy normal man never realizes that he has health till he begins to lose it, and then he turns to the man who knows the ins and outs of his mortal frame, or at least who he thinks does, and takes his orders, be he king or pauper, and ties to him as his last hope. And the doctor of medicine has always been striving, with constantly increasing capacity, to meet the responsibility that men thrust on him.

Some of the historic personages of our profession have been among the brightest lights of their day, and taking them from first to last I doubt if the world has been more in debt to any class of men. From early time they have been abreast or ahead of the age they lived in. Long before Aesculapius, the fabled son of Apollo, there is record of good medical, surgical and professional pedagogic work among the Egyptian and Hindu peoples. Hippocrates, 2,500 years ago, the Father of Medicine, furnishes one instance of philosophic approach to his problem which I feel ought to be laid before you as a model of method. Note how he gathered the facts with an unbiased mind, after which he drew the obvious deductions and applied the remedy, a course of procedure which ought to control all investigation.

The record is as follows: "Hippocrates was once summoned to Abydos, in Asia Minor, near the spot where Xerxes crossed the Hellespont, to redeem the place from the annual ravages of intermittent fever. He surveyed the conditions of the city,

discovered wherein the sickly portion was unlike the healthy portion, resolved to arrest the evil at the fountain head and not to dam the current swollen by a thousand tributaries. He accordingly caused that portion of the city that abounded in swamps to be drained and filled up with earth, thereby stopping the decomposition of damp vegetable material, and secured uninterrupted exemption of that quarter of the city from that day to this."

I do not know of a better illustration of the proper attitude toward research work by either a health officer or a diagnostician than this. He found all the facts and arrayed them, did not distort them by preconceived theories, applied such knowledge as he had, and the problem solved itself. If he had had our ten-year old knowledge of the role of the mosquito his work would have been facilitated and more satisfactory to him, but the result of such knowledge and deduction as he had was as effective as that of Gorgas and Doty.

Read the history of your profession and let your heart warm toward it. "It comes of an ancient breed and has the pride of race and achievement."

I have made some reference to the educational requirements for admission to it; there is this to be said for the medical profession, that these have been set by the profession itself. It has often enough been told how low these standards once were, and the time was when, in this country, this was a matter for various reasons of necessity; but with the increase of knowledge and opportunity they have been constantly raised. And it has been not because of outside pressure, for the people have been indifferent or opposed to it, but because medical men have listened to their own professional conscience and taken the initiative. The history of their work makes a bright page in the annals of medicine. Year after year men have come, among them some of our own faculty, to Society meetings and halls of legislation to contend for more advanced education preliminary to matriculation, for lengthening courses of instruction, for laws against incompetents, quacks and diploma mills, for a single State Examining Board. This has been necessitated by the enormous and ever increasing growth in human knowledge, in which this profession is interested and to which it has been a very considerable contributor, especially in those sciences to which it is related.

One of my classmates in college, now head of the Department

of Geology in Chicago University, made the statement, at the fortieth reunion of our class held not long ago, that since we graduated the sum total of human knowledge had more than doubled. This seemed to us rather astounding, for the sum total then, of which of course we had only nibbled the rind, appeared as we looked back certainly very large. But he declared that what he said was deliberate and conservative. What does this extraordinary statement imply. It means, in the opinion of a man of science, a competent observer who should know, that the world has garnered in the short period covered by the life of one generation, as much of learning, of skill, and of scholarship as it had accumulated in all the centuries that had gone before.

Is this time of mental activity continuous; can you college men duplicate that statement forty years hence? Why not? The wise years still work; the added millions of a great fortune make acquisition easier.

The tercentenary celebrations of terrestrial discoveries, of Lake Champlain and the Hudson, of this current year which has just been made further eventful by the announcement that the hazardous way to the North Pole has been doubly traversed, bring forcefully to our minds the work of pioneers over uncharted seas and lakes and rivers to bring the unknown ends of the earth into human ken. The material world is bounded and its limits set; but the universe of mind and science is limitless to the patience of genius, and the discoverers of today stand on the shoulders of those of yesterday. No man can set the bounds of human achievement in any direction. Already, within the observation of the youngest of you, have come the incredible marvel of wireless telegraphy, the conquest of the air, and, of obvious acquisitions in our own domain, the lesson of the Japanese War, the role of the mosquito in malaria and yellow fever, the serum against cerebro-spinal meningitis.

There is enough in the day's work of thoughtful men unsatisfying to the intellectual conscience, to show that medicine, to speak of it alone, is far from a completed science. In our profession, in all lines of work, men are eager, busy, to meet the insatiable demand for more knowledge, adding new territory or better charts almost day by day. You are setting foot on a continent of knowledge, and I have no doubt you are ambitious to become honorable citizens in it; to respect its

ideals and bare your heads to its colors; you come to find the way, along the way of education, into a great profession which finds education a living theme.

What a great thing education is. It lifts men from the ground toward divine heights; it transforms a clod of earth into a being of light; it can breathe into an inanimate soul the breath of life; its vitalizing spirit ought to make a man realize his immortal birthright; its germinating seeds, planted by its ordered institutions or equally well, if the soil is avid, from any communicating source, by the light of a pine knot, or possibly in the hard school of experience, in the immortal part of us, can if they grow there in right culture make one a joy to himself and of good to men. What service has been wrought by those who serve in the sanctuaries of knowledge; one such may be a national asset of untold value; who can appraise the import to the world of Walter Reed and Robert Koch and Edward Jenner? Happy are they who may be its disciples; thrice happy its heroes and high priests.

What is education; how is it to be attained; how is it to be communicated? The subject was never more anxiously debated by the educational leaders—the teachers, Commissioners of Education, heads of colleges and universities—than at the present time. Under the stimulus of widespread dissemination of daily information and its ready exchange, education in all its aspects is going forward in this country with great rapidity, and its speed and scope tend to carry it off its methodic bearings. I have no desire to plunge into the depth of this large theme, nor beyond proposing certain convictions, to take part in the debate.

In satirical vein one voices a protest against what he calls monk-made methods of education,—a pedagogic theory that the true goal of education is to develop mental power; he "would have the schools teach what pupils will later use in life." This is the utilitarian, or as some would call it, the commonsense purpose of education. It appears to assume that the acquisition of knowledge is all there is to education.

On the other hand, among the notable college utterances this year, President Hadley deplored the subsidence of interest in the study of Greek, and is of the opinion that in the endeavor to get more practical results in the way of *knowledge*, college boys have lost the *training* that Greek would have given them

and gained nothing of equal value in its place. Taking this study as a medium of culture, he finds it harder in the lack of it to enforce habits of regularity, to organize intellectual competitions and to make examination marks a test of ability, things which make for established character. I was greatly impressed by the Inaugural Address of Chancellor Richmond, of our own Union University, last June, in which he gave his conception of the end of education, and declared for culture of the mind and soul as essential to it. And on the same notable occasion President Woodrow Wilson, in an address in like spirit, epigrammatically defined an educated man as "one having a perceiving and discriminating mind whose reactions are immediate." In such line of thought have been the worthiest utterances this year in most of the institutions of learning.

Attorney-General Wickersham addressing a leading technical university, urged the insufficiency of technical education to furnish all that a man needs in the way of training; almost without exception, he said, the great men whose names have been written large in the history of science were men of broad culture, often almost as proficient in literature and art as in science.

Dr. Charles P. Steinmetz, at the recent Convention of the American Institute of Electrical Engineers, declared more emphatically than anyone has for the classics as an adjunct to technical education. He declared, to quote from the last issue of *The Outlook*, "education is not the mere learning of a trade or profession; it is the development of the intellect and the broadening of the mind afforded by a general knowledge of all the subjects of interest to the human race. The educational preparation required to cope with current problems is practically the same in all walks of life; the general education of mind and intellect required by the engineer, or the lawyer, or the physician is essentially the same."

Lyman Abbott has said: "The first end of education is to train the mind to habits of lawful thinking."

In an age of great industrial development such utterances by educators and men of affairs as well are timely. The country has been dominated by a commercial spirit. Tangible substance has been demanded of the schools; it has been not only forgotten that the activities of life are not half met in winning a livelihood or accumulating wealth, but that the demands of education are

further than the accumulation of information and craft; a change in the quality of the man himself.

Education is something more than barnacle-like accretion of facts; if that were all, the mind is as likely to be burdened and hindered by them as furnished and helped. The mind is not a bag to hold open and fill. A well-informed man, as its radicle definition would suggest, is one who has made his knowledge a part of himself. Neither is education, save in its lower grades, the acquisition of deftness; it may serve for an artisan but not for an artist. Of course minds are as diverse as faces, but a valedictorian does not always make the best man, neither is the clever man the wisest. One can be educated only when he has digested his learning and made it an essential part of his being, whether of intellect or of function, and along with it a mental dexterity and perhaps also a manual craftiness that enables him to use it in happy harmony with his best nature and environment.

Definitions of Education have been formulated, from that of Huxley down, and whether formulated or not there are diverse ideas of what constitutes education. It is not easy to confine into a phrase a complex proposition, which has its practical and its abstract aspects. While a layman ought not to intrude, I have attempted the following formula:

An educated man is one whose intellect is instructed in all that pertains to the work and happiness of his life; whose body is trained in all its members to perform with accuracy the functions to which they are variously to be set; and whose mind is ready by digesting and appropriating all its instruction and training to preside appropriately over itself in harmony with his own best nature and environment.

It may be well to ask why I take this occasion, at the opening session of a vocational school, to lay emphasis on this side of the subject of education. There are reasons why there is no better place to say it, apart from the fact that no men are more interested in the whole subject of education than the members of an educated profession, to justify our interest in our own education.

I may say with Mr. Wickersham that " the man who enters upon his life work with a mere technical training, when he comes in competition with men of broad culture is at a decided

disadvantage." What he says of men of mark in other sciences may be said of men in this.

Bread winning is only half a life. If your heart is set on that you can accomplish it without question, and can win a good deal more than your legitimate share for that matter. There are amenities and conveniences in life that are worth more than bread, and for which it cannot be bartered. I am glad to say that the trade side of life does not characterize medical men as a class.

You want to be more than mere artisans. There is something to be wrought into your professional equipment more than the art of it; you want to absorb more than what is physical.

But here in the school, before you get out yonder into practical life, this principle of broadness ought to characterize your work. Lay deep in the mind the science of all that goes to make medicine, and do not be content with superficialities. Learn all you can about the principles and methods by which this intricate body which is the subject of our concern here works in all its normalities and abnormalities. You will never be contented in your work if you have only tried to acquire the superficial and obvious, or what you might be tempted to regard as the common-sense part of your education. A man is rather hopeless who is eager to copy a prescription and indifferent to the deeper interest of the disease. I have a conviction that an education left only with an exhibition of examples at a clinic is acquired by a halfway method of learning medicine. It is against the laboratory method of teaching that students may learn to trust to mechanical research methods to the loss of deeper deductive study of clinical data. A subject ought to be learned in an orderly way. The whole rationale of diseases of all the organs of the body should be presented academically and learned as a science rather than as an art before one can have a satisfactory knowledge of them or be properly expert in their management. The methods of scholastic days should follow on into the technical school. A smattering of knowledge is worth little. Keep yourself scholarly.

Keep your mind open to the best purposes of Medicine and learn unpractical things. Among them study preventive medicine, for there is no higher work than that of the poorly-paid health officer. Without sanitation, as Dr. J. H. White, in his Chairman's Address before the section on Public Health,

said truly last summer at Atlantic City, every city would be a focus of endemic disease or an unspeakable pest hole. This kind of work is the most satisfactory in the world; health, wealth and happiness are the more certain product of this specialty, to the greatest number of people, than of any other agency in the community. Get now an impulse towards the obligations and responsibilities, without fear, without reproach, that must weigh on every conscientious practitioner of medicine.

As I sat in a train one winter day coming down toward the Mohawk Valley there came in at a way station a middle-aged man, who dropped into a seat by himself and became absorbed in his own reflections. I knew him for a physician of a near-by village to which he was evidently returning by train. It was interesting to study him. He was of robust frame, strong and vigorous. He wore simple, serviceable dress. He had a look of intelligence and lines of thought marked his face. He had an air of quiet self-confidence and a sort of masterful manner; but there was a look of concern about him, as if burdened with a somewhat responsible duty, and he was wrapped in thought and self-communing which he was not disposed to share. Apparently he had been accustomed to a necessity for this from lack of any neighbor whose counsel could aid him, or to whom he could turn for wisdom or enlightenment. He was used to working out his problems alone. So he sat there quietly, not even diverting himself from his preoccupation by a glance around for a familiar face or a friendly greeting. Evidently he was confident of his resources and had traveled the road of investigation through them many times before as to how best he should meet the needs of a serious charge that had been put upon him. At the next station he entered his waiting vehicle, and perchance with a long ride before him went conscientiously communing with himself upon his responsible tasks. I pictured anxious people waiting his coming, taking his unvoluble counsel and trusting his decisions as of life or death. Valued man; who else in all the community meant as much.

That man needs information and training; so does an artisan at his bench or even an expert shoveller. They can manage with nothing more; this country doctor has a new problem with every serious case, new conditions, individual characteristics, unique phenomena. He is dealing with the multitudinous phases of expression of complex vitalities, not with a lump of clay or a

block of wood to be shaped just like those handled before; he cannot catalogue his diseases like hoe-handles and pick out of a tool-box of prescriptions those which work as a blade works on inanimate matter. This man needs, for his larger task, beyond his learning and technique, "a perceiving and discriminating mind whose reactions are immediate." He needs to be an educated man, in its best sense, possibly not along the helpful way of Greek language, which seems to have come almost to be relegated to furnishing a supply of curious names for secret societies, but at any rate it is the Greek spirit.

One may wonder why doctors and nurses chose their vocation, to minister personally to sick and injured people. It has compensations enough for those fitted to it. And it is alleviated by interest in outside concerns, which broaden and help; literature, science, the general interests of the community, duties as a citizen. No one speaks with more authority than the respected physician on such things as public health affairs, in which every one of them should have a hand. It is the man of wider culture who is going to care for all these things, and live effectively. I can wish you nothing better than success won in such way in your student life and a fortuitous future in your chosen work.

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# THE USE OF NITROGLYCERINE IN CHRONIC MYOCARDITIS AND OEDEMA OF THE LUNGS.

*Read before the Albany County Medical Society, April 14, 1909.*

By SAMUEL B. WARD, M. D.,

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*Mr. President and Gentlemen:—*

It is only in comparatively recent years that the important part which myocarditis plays in preventing the heart from properly performing its function has been fully realized. When I was a student, and for some years afterwards, the standard text-book in medicine in all English speaking countries was Watson's "Principles and Practice of Physics." Sir Thomas Watson, Bart., M. D., F. R. S., D. C. L., held numerous important professional positions, such as President of the Royal College of Physicians in London, Honorary Fellow of the King's and

Queen's College of Physicians in Ireland, and Honorary Fellow of St. John's College, Cambridge, and was also Physician in Ordinary to the Queen. His lectures were first delivered at King's College during the session of 1836–37; the first printed edition appeared in 1843, and the last, so far as I know, in 1872. They are replete with the latest information of his time, couched in the most simple, beautiful language—perfect models of what medical lectures should be, and fascinating reading even at the present time. There is no doubt that in his day he had no superior and very few equals, yet no edition of his text-book even contains the word "myocarditis" in a very complete index. Nor in discussing heart-affections, to which the last edition devotes nearly eighty pages, does he mention the subject of inflammation of the heart muscle, except in one line which reads "But the inflammation had fallen, partially, upon the aortic valves; whence it had extended (so I imagine) to the muscular substance," and another which reads "You will often find the muscular substance of the heart pale, soft and flabby, easily broken down or penetrated by pressure. * * * It sometimes accompanies a plentiful deposit of fat about the organ; and it is supposed to be sometimes also a consequence of inflammation affecting the muscle." He devotes twenty-three pages to what he calls "rheumatic carditis" and gives the histories of several autopsies; but in each instance the findings were those of endocarditis and pericarditis, while the condition of the heart muscle itself is not mentioned at all.

It is curiously interesting to note also that he speaks of obstinate refusal on the part of two of his patients to answer questions, as among the other rare "head-symptoms" of rheumatic endocarditis. He says that they understood everything that was said to them, put out their tongues, though with some difficulty, and obeyed all other orders willingly, but preserved a dogged silence. They were undoubtedly cases of motor aphasia, the result of embolism, of which, however, little was known at that time.

On the other hand Dr. Watson presents perfectly clear views of the importance of the integrity of the heart muscle. He says "Like other organs that are complex of structure and formed of different tissues, the heart is subject to partial disease. Its lining membrane alone may, in the first instance, become the seat of inflammation, with its various effects; or its investing

membrane only may undergo morbid alterations; or the muscular substance that constitutes the organ itself may be gradually changed in its qualities, in its bulk, or in its proportions.

But the morbid conditions of the investing and lining membranes do not always, or immediately, compromise the life of the patient. They are fatal at length, in ninety-nine cases out of a hundred, through the alterations to which they lead in the muscle wherewith they are connected. It may be practically useful therefore to consider, first, these ultimate morbid states which are incompatible with the continuance of life; and then to trace them back to the next link in the chain of their causes, which will be found, in very many instances, to consist in some antecedent morbid state of the exterior or of the interior membrane."

Later on he describes with great accuracy and detail fatty degeneration which in that day was considered by far the most common and most important cause of failure on the part of the heart muscle to perform its function.

It is probable that thirty years ago the text-book most generally used in this country was that written by the late Alfred L. Loomis and he was the first man that I ever heard attach any great importance to arterio-fibro-sclerosis—the condition which is now in the mouth of every layman as "hardening of the arteries." Loomis in his eleventh edition devotes three pages to myocarditis—a great advance over the three sentences of Watson.

In the last ten or fifteen years current medical literature has been overflowing with articles on this subject and I think that we are all now fully impressed with its importance.

We have all seen children of eight or ten years become the subjects of mitral regurgitation as the result of acute articular rheumatism or of scarlet fever, complicated by an endocarditis. We have seen the left ventricle dilate so as to contain at each charge the amount of blood necessary to go forward into the aorta, plus the amount which passes back through the incompetent valve, and at the same time hypertrophy, so as to be able to propel the extra amount of fluid. The right ventricle hypertrophies also to overcome the back pressure through the diseased mitral and thus compensation is achieved. And as long as the heart-muscle remains in good condition, perhaps

for twenty, thirty, or forty years, no rational symptom will develop to interfere with the activity or usefulness of the patient. But if this patient contracts any infectious disease, such as typhoid fever, or grippe, which is prone to produce myocardial inflammation or degeneration, his chances of recovery are markedly less than those of another patient with a healthy heart. I must confess that I dread to be called upon to attend through a pneumonia, typhoid fever, or any other serious illness, a patient who has any organic heart affection, particularly if the myocardium is involved.

But even if our patient with a valvular lesion contracted in early life, and perfect compensation, has the good fortune to escape any serious illness, advancing years are certain, sooner or later, to bring on arterio-sclerosis, and the extra labor put upon the heart-muscle, by the valvular lesion and the condition of the arteries, is bound to produce chronic myocarditis and the accompanying change of muscular tissue into connective tissue. Dilatation of the cavities goes with this condition and compensation is broken. The laity have an idea that death from heart-disease is always sudden and practically painless. There was never a greater mistake. It is of course true that a few patients with aortic disease, angina pectoris or rupture of the heart, die almost instantly; but the large majority of patients with organic disease of the heart live until compensation gives out, then linger along for months, or years, suffering untold agonies, mainly from dyspnea, and praying for speedy release. From such a death " Good Lord deliver us."

Dyspnea results from anything that upsets the normal balance between the respiration and circulation, and may be due to a deficient supply of air to the lungs to oxygenate the blood which is there in abundance, or to an insufficient supply of blood to be oxygenated. To one factor in the production of the agonizing dyspnea which accompanies ruptured compensation, I desire to call particular attention and that is edema of the lungs. This condition is evidenced by two symptoms especially. The patient spits up a more or less frothy and tenacious fluid, sometimes a pint or even a quart in a few hours; and the stethoscope applied to the chest, especially to the inferior and posterior portions reveals a large number of coarse, bubbling rales The fluid, consisting of the serum of the blood, is exuded into the air cells, into the bronchi and into the connective tissue of the

lung as well, compressing the air cells as well as filling them up, and indescribable suffering from "air-hunger," as the Germans call it, is the result. My observation leads me to conclude that this is the main cause of the agony which these patients endure. Of course, air enters the larynx, trachea and bronchi freely; there is no such difficult breathing as occurs when there is a foreign body in the larynx, or when the bronchi are narrowed during an attack of spasmodic asthma; but the edema prevents the air from reaching the blood, and the respiration is rapid and panting in order to change the residual air as speedily as possible. In extreme cases orthopnea is always present.

It is now generally admitted that arterio-sclerosis is a very common condition in advanced life. In point of fact it is true that many persons show some evidence of it before the half century line is passed and comparatively few are entirely free from it at sixty. It is a well recognized fact that under a given pressure more fluid will pass through an elastic tube than through a rigid one. A rubber tube of one-eighth inch in diameter will carry, under given pressure, a larger amount of liquid in a given time than will a glass tube of the same calibre, because under pressure the rubber tube is decidedly increased in diameter and the carrying capacity of a tube increases not simply with the diameter but with the square of the diameter. The inelastic vessels, therefore, in arterio-sclerosis being required to carry the same amount in a given time for the supply of the various organs of the body as they did in their previous elastic condition, require greater force in the contraction of the heart, and this leads to hypertrophy of the left ventricle. The sclerotic changes in the arteries are accompanied by a corresponding change in the myocardium and chronic myocarditis sooner or later invariably accompanies the arterio-sclerosis. One potent factor in this myocardial change is the degeneration which occurs in the coronary arteries in common with all the others in the body. This leads to insufficient supply of blood to the myocardium and hastens its functional disability. After these changes have reached a certain point, some unusual physical exertion on the part of the patient, or some shock, or anxiety, or overwork, brings about additional strain on the weakened heart, which results in acute dilatation and also in edema of the lungs. As before mentioned, this brings about frequent attacks of dyspnea, from which the patient suffers terribly.

As a general rule, the patient survives the first attack and many subsequent ones, but the result is ultimately fatal. At first the attacks can frequently be accounted for by over-exertion, overwork, anxiety, or imprudent or excessive eating; but later on the attacks come without any assignable cause at all and are frequently especially severe at night, waking the patient out of a sound sleep.

In this condition of dilated heart and pulmonary edema we have in nitroglycerine, if given in sufficient doses, a remedy, which in my estimation and experience has proven far more valuable than all the rest put together and yet which seems to have escaped general notice. One of the most valuable books recently published is entitled " The Prophylaxis and Treatment of Internal Diseases " written by Dr. F. Forchheimer of Cincinnati. It is a remarkable production in that it combines the latest scientific information with an unusual amount of sound, practical, common sense; yet in his paragraph on the treatment of edema of the lungs, nitro-glycerin is not found mentioned. He advocates adrenalin, digitalis, caffeine and various other cardiac tonics and stimulants, as well as dry cups and mustard packs; venesection in proper cases; the internal administration of lead acetate is condemned and inhalations of oxygen are pronounced useless, but tri-nitrin is not found mentioned.

In the " Index of Treatment " published last year by various writers and also containing a vast number of excellent suggestions, in cardiac failure and edema of the lungs, digitalis, strophanthus, carbonate of ammonia, camphor and the various heart tonics and stimulants are recommended, and in one line the statement is made "A small quantity of liquor trinitrini (I min.) added to the medicine is of help."

Now, in my experience one drop doses of a one per cent solution of nitroglycerin given with digitalis every two or three hours, are practically inert; but if 1-20 to 1-10 of a grain be given every minute for twenty or thirty doses, brilliant results will be obtained, days before the effect of digitalis can possibly be expected.

The most recent works on therapeutics, such as those of Butler and Shoemaker, state that the action of nitroglycerine is very similar to that of amyl nitrite, but less prompt and more persistent. There is marked lowering of arterial tension owing to the general enlargement of the vessels, due to the

action of the drug upon the muscular coats of the arteries and not upon the nervous system or vaso-motor centres.

When taken internally there is at once observed a flushing of the face, with fullness and throbbing of the temporal arteries, the patient complaining of headache, fullness and oppression, with giddiness and confusion of ideas. The action of the heart becomes rapid with weakening of the pulse. The reflex excitability of the cord is reduced. The brain is indirectly influenced and its functions are exalted by the temporary congestion. Oxidation is diminished and the arterial and venous blood both become of the same dark color. Respiration and temperature are both reduced. The flow of urine is increased. According to the late Professor Leech, of Manchester, quoted by Shoemaker, the nitrates affect especially the blood and muscles. They depress the nerve-centres and nerves, but their action in this respect is less marked. In some patients the nitrites excite gastric irritation and diarrhoea.

Larger doses occasion failure of heart action, arrest taking place in diastole. In cases of poisoning the blood assumes a characteristic chocolate color, due to the formation of methaemoglobin.

Many years ago Dr. Lauder Brunton recommended the use of the nitrites to prevent or arrest the paroxysms of angina pectoris and clinical experience has amply proven the value of his suggestion. They have also been recommended for the relief of dyspnea due to other forms of cardiac disease and to pulmonary lesions. They appear to be particularly useful in cases of mitral disease but aortic incompetence offers no obstacle, according to Professor Leech, to their use in small quantities when the breathing is oppressed. Their value in asthma, when the spasmodic element is strong, is well known. They have been successfully employed in epilepsy, tetanus, neuralgia, chloroform narcosis and strychnine poisoning. Dr. S. Solis-Cohen had successful results from their use in pneumonia, complicating grippe, and many of us can bear witness to the same from our own experience. They are of service in stimulating the heart in the event of sudden failure, which may occur in fatty heart, or after hemorrhage.

In the case of edema of the lungs the toleration for this drug is most extraordinary and relief from dyspnea is uniformly obtained before the physiological effects, such as flushing of

the face and throbbing headache, are produced. As I said before, you need not fear to give a grain or two in an hour or two, unless relief is sooner obtained.

The recital of the histories of numerous cases in detail in a paper like this is always tedious. But perhaps you will bear with me if I briefly report two of myocarditis with cardiac failure and edema of the lungs, one without and the other with valvular lesion.

W. F. F., age 68, American, married, a veteran of the Civil War, with good family history and a man of good habits, had enjoyed excellent health until about two years ago. He never had any serious illness except malarial fever during the War of the Rebellion, and two or three attacks of grippe. For some years arterio-sclerosis had been developing in a moderate degree as evidenced by the condition of his radial and temporal arteries and a blood-pressure of 165 millimeters.

About Feb. 15th, 1908, he had an attack of grippe and was quite ill for two or three days. He gradually recovered from the acute attack but as is the case with unfortunate frequency, myocarditis occurred as a complication. During the night of Feb. 27th he was suddenly taken alarmingly ill. Circumstances were such that I could not go to him promptly and my friend, Dr. Rooney, was good enough to go for me, He found him orthopneic, deeply cyanosed, with a constant short cough. pinkish, blood-stained, frothy serum running from his mouth and nose, and innumerable coarse, bubbling râles all over both sides of the chest and in great agony. He appeared to be practically moribund. He was given five tablets of 1-100 grain each of nitro-glycerine, by the mouth, every half minute for about fifteen minutes, after which the dose was gradually reduced, and at the end of half an hour he was quite comfortable. He took during that half hour between a grain and a half and two grains of nitroglycerine, with entire relief, producing no flushed face and no headache. His second attack of edema of the lungs occurred during the night of April 29th, 1908. Being a very intelligent man, having learned what the bubbling râles in his chest meant, having provided himself with a supply of the nitroglycerine tablets, and having an uncommonly proper aversion to calling a physician out of bed, he simply took them himself as fast as he conveniently could, was speedily relieved and did not send for me until the next day. He has had several slighter attacks since, in some of which I have seen him, but he always takes the nitroglycerine so promptly that they never now become severe. In the meantime he has had the usual heart-tonics and other treatment for myocarditis. He is still alive and fairly comfortable so long as he does not make any great physical exertion and during the past few months has done a considerable amount of literary work. It is not unusual for him to take from 1-10 to 1-5 or even 1-3 of a grain a day and without it is very uncomfortable at times.

The second case resembles the one just narrated as far as the

condition of myocardial degeneration is concerned but it differs from it in that it was preceded by a valvular lesion.

A. H. G., age 60, a physician in a country village, married, was seen by me in consultation on December 9th, 1908.

Family history was unimportant.

His personal history was that his general health had been excellent; he worked night and day very hard, for many years, in the practice of his profession. At thirteen he had an attack of acute articular rheumatism which kept him in bed and in the house for many weeks, and as a complication had acute endocarditis, followed by mitral regurgitation and after a few months compensation was excellent. He has never kept a horse but has done most of his practice on foot and has a record of having walked 35,000 miles in the past forty-seven years. He has had several minor attacks of rheumatism during these years but no other illness, except grippe in 1889.

The history of his present illness is that in May 1906 he began to have a "smothered feeling" after exertion or excitement and two or three attacks each week for many months. In other words, compensation was failing. On August 25th, 1907, at 7 P. M., he hurried up a hill to see a patient who was *in extremis*, exerting himself in lifting, and had a very severe attack of dyspnea; froth, streaked with blood, streamed from his mouth and nose; he vomited and his bowels moved freely; had copious perspiration; was not unconscious; had marked cyanosis and a pinched expression of the face, and was in terrible agony from dyspnea. He could not speak or move for several hours, but sat leaning on a chair until 2 A. M. and then sat up in bed the rest of the night. During this attack he spat up over a quart of frothy serum. He was ill for two weeks and then gradually resumed his medical work. He has had four attacks since, but not as severe as the first, because he had found that nitroglycerine gave him relief. *During the past year he has averaged nearly four grains a day*—a twenty-fifth of a grain every fifteen minutes. He has been in bed for the past four weeks.

Physical examination shows the heart dulness to extend from the lower edge of the second rib downwards, and from a line one inch to the right of the right edge of the sternum out to beyond the nipple line and the apex beat is in the fifth space in the anterior axillary line. There is a loud systolic murmur at the apex, heard also at the angle of the scapula and at the side of the vertebral column; while the second pulmonic is markedly accentuated. The systolic blood-pressure is 155 millimeters. The lungs are emphysematous. There is some effusion in the right chest; none in the left. Liver dulness extends from the fifth rib to a line two inches below the free portion of the ribs and out to the left of the median line. The spleen is normal and there is considerable fluid in the peritoneal sac. The lower extremities are edematous, up to the trunk. The urine has a sp. gr. of 1015; contains albumin and numerous casts. He has serious insomnia for which he takes 1-4 grain of morphine at night and no more. Trional nearly killed him. Sulphonal, veronal, paraldehyde and somnos all failed.

Diagnosis of chronic myocarditis and edema of the lungs, following after mitral regurgitation and ruptured compensation, was made, with general arterio-sclerosis.

I tried to induce him to cut down the dose of nitroglycerine, which really seemed enormous, but he absolutely refused saying that it was the only thing that gave him any comfort.

Various heart tonics were tried during the next few weeks, but he died on January 14th, 1909. An autopsy was made by a representative of the Bender Laboratory. I will not inflict upon you the report in full, but the substance of it was "marked myocarditis, arterio-sclerosis and mitral insufficiency."

A dozen other quite similar cases might be reported, but they would show no fresh facts. If I have succeeded in impressing upon you that nitroglycerine is our most valuable drug in the treatment of cardiac failure and edema of the lungs I shall have accomplished my purpose.

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# THYMUS-TODT.

## Report of Two Cases with Autopsies

*Read before the Medical Society of the County of Rensselaer, April 13, 1909.*

By WILLIAM KIRK, Jr., M. D.,

*Troy, N. Y.*

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Sudden death in infancy is often associated with an enlargement of the thymus and general hyperplasia of the lymphoid apparatus. Bichat[1] in 1723 noted the condition, but little attention was paid to it until in 1827 Mr. Howd,[9] and in 1829 Kopp,[13] emphasized it and drew attention to thymic asthma. The latter, with Dr. Montgomery[18] in 1836, explains thymic asthma as being caused by pressure on the recurrent nerves. As pointed out by Paltauf[20] and Escherich[5] the thymus enlargement is often part of a general hyperplasia of the lymphoid structures. The superficial lymph glands of the cervical and axillary regions are enlarged, as are the circumvallate papillae of the tongue. There is hypertrophy of the tonsils and adenoids are present. Spleen often is enlarged.

We know little of the clinical history of these cases except that the patients have usually a pale thin skin, a pasty complexion and an abundance of sub-cutaneous fat, Trousseau.[26] The data

usually comprise a statement of the child's having been found dead in bed, or that there has been a paroxysm of thymic asthma with death ensuing after a long continuance of the first attack. Pennecker[21] described a case of continuance of the asthmatic condition in a child two and one-half years old which was successfully operated and an enlarged thymus removed. Some cases are very sudden in termination and not preceded by respiratory disturbance and these are assumed to be due to cardiac failure. There is a form, of nervous origin, in which the patients, usually young adults, die in a few hours after a sudden onset of coma or perhaps epileptiform convulsions. Cerebral vomiting may precede the coma, resulting conditions being attributed to status lymphaticus and cerebral edema.

Blake has laid stress upon a theory, in which he has been supported by Blumer, to the effect that sudden death under anesthesia may be due to thymus enlargement rather than to cardiac failure; whereas death has frequently been accredited to cardiac failure because respiration has persisted after cardiac action has ceased.

The surgical sudden death may be preceded by pallor, dilatation of the pupils, weakening of the pulse and shallow respiration. Two classes especially liable to death under anesthesia are cases of goiter and patients having adenoids in the vault of the pharynx. The relation of infections in producing sudden death, often associated with status lymphaticus was shown by Daut[4] in the Vienna clinic. He found that many infants dying of diphtheria show status lymphaticus, and the well known case of Prof. Langerhans'[16] child who died after the administration of diphtheric antitoxin belongs in the same classification.

The condition of the thymus in status lymphaticus is interesting. There is a marked hyperplasia of this organ but the lymphatic gland involvement may be limited to one or two groups. The intestinal or spleenic lymphatic apparatus may be especially involved or it may be wide-spread in all the tissues of the body. A lymphoid condition of the bone-marrow has been shown as well as edema of the brain. When the enlarged thymus has compressed the trachea there may be evidences of asphyxia, such as subpleural and subserous hemorrhages and atelectasis or pulmonary edema and congestion.

While the histological study of these cases may show a simple hyperplasia (according to Paltauf[20] and Ewing[6]) Lartigau[17] has shown lesions in the spleen similar to those found in diphtheria

and other infections. Blumer[3] found general hyperplasia of the lymphoid elements associated sometimes with proliferation of the endothelial cells lying along the trabeculae of the organ. In the lymph nodes, Malphigian corpuscles of the spleen, the tonsils and the lymphatic apparatus of the intestines, a general hyperplasia with focal changes. These focal changes in the lymphatic apparatus were found in connection with the germinal centers and in the Malphigian corpuscles in the spleen. In the lymph nodes, tonsils and intestines there was an increase in the number of the cells composing the germinal centers with slight degenerative change in the proliferated cells. In the spleen there was also a multiplication of the endothelial cells of the vessels of the Malphigian bodies. The lesions closely resemble those seen in other infections. No bacterial agency to account for the lesions has been found.

*Causes of death.*—Must be divided under two heads: (1) Theories assuming that death is due to mechanical pressure of the enlarged thymus upon vital structures, and (2) Theories attributing death to cardiac paralysis and indirectly to some form of toxemia. The mechanical theory that death is due to asphyxia from pressure upon the trachea by the enlarged thymus is strongly opposed because few observers have noted cases in which there was evidence of compression. But in support of this view must be put forward the fact that the space between the manubrium and spinal column is very narrow in children, about two centimeters, and this is minimized by throwing back the head. The opponents of this theory lay stress on the weight of the enlarged thymus and the compressibility of the trachea. The weight seldom exceeds 50 grammes and it is said that it takes a pressure of 180 grammes to compress the trachea, according to Tomassio,[25] and according to Scheele, [23] 700 grammes. But writers of such experience as Grawitz,[7] and Lange,[15] have published cases in which there seemed to be compression of the trachea. It has also been thought that death is due to compression of other structures, the heart itself or its great arteries or nerves. Potts[22] suggested that positive pressure on the heart may lead to compression of the pulmonary artery. It is supposed that pressure upon the heart might interfere with its action. Pressure on the pneumogastric nerve or nerve plexus might cause death by direct paralysis of the heart or lungs or reflexly produce it. Escherich[5] voiced the theory that death in this condition was

due to toxemia and he compared it to exophthalmic goiter and myxædema. He assumed that the process was due to an overproduction of the internal secretion of the thymus. There is little known about any internal secretion of the thymus.

Case I (occurred in private practice of writer).—June 10, 1907, Albert M., found dead in bed. Age eighteen months. Autopsy eight hours after death.

*Abstract from autopsy findings:* Both lungs show pin-head ecchymoses of the pleurae; thymus gland much enlarged extending over upper third of precordium; spleen slightly enlarged; lymphoid structures of intestines plainly visible to naked eye, solitary follicles measuring from two to four millimeters in diameter; mesenteric lymph glands much increased in size.

*Microscopic examination:* Thymus: greatly increased connective tissue, very slight fatty change; increase in lymphoid and large polyhedral cells.

*Kidney:* Congestion of vessels, cloudy swelling in the tubules; slight amount of connective tissue increase; proliferation of cells of malphigian tufts.

*Liver:* Connective tissue proliferation.

*Lungs:* Vessels congested; some extravasation into alveoli; blood-vessel walls hypertrophied; pleura normal; adrenal normal; lymphoid structure of intestine hypertrophic; germinal centres persist, show no central necrosis; mesenteric lymphatic glands show increase in pulp; germinal centres persist; no degeneration of cells; connective tissue cells present; spleen, great increase in connective tissue elements.

Case II (in practice of Dr. E. J. Gravatt).—Sudden death after illness of two hours' duration. Autopsy by Dr. H. W. Carey. Arthur L. L. V., age six years. No lymphatic enlargements in groins, axillae or cervical regions; thymus appears to be enlarged and extends well down over base of pericardium in middle line; measures ten by three centimeters; spleen measures seven by six by four centimeters, not perceptibly enlarged; on section normal; general lymphatic enlargement with enlarged thymus; large intestinal mucosa shows enlargement of the solitary follicles; mesenteric glands are everywhere enlarged and a pinkish color.

*Anatomical diagnosis:* Enlargement of thymus; enlargement of mesenteric glands (lymphatic); hypostatic congestion of both lungs; thymus todt.

*Microscopic examination:* Thymus gland shows a dilatation of the blood vessels and what seems to be an increase in the amount of stroma. The lymphatic tissue itself is for the most part well preserved but here and there, scattered through the section are areas of degeneration in which the cells stain poorly and show disintegration. The remains of epithelial tissue are very numerous but present no unusual features. The blood vessels are everywhere congested. Running in the stroma in two places is what appears to be a vessel lined by endothelial cells, about which the connective tissue is proliferated and resemble endothelial cells.

The lumen of the vessel contains red blood cells and the vessel seems to connect the lymphatic tissue in two lobules. The mesenteric lymphatic glands are hypertrophied, the hypertrophy being almost entirely in the pulp. The germinal cells are present to the extreme periphery and the central portions have undergone marked degeneration as shown by the disintegrated cells. The endothelial cells in the germ centres are proliferated and are so arranged at times as to resemble miliary tubercles. The hypertrophy in the pulp is in great measure due to connective tissue growth.

*Spleen:* Capsule is not thickened, the stroma seems slightly increased in amount, the malphigian bodies show necrotic centers similar to those described in the lymphatic glands. The stroma forms by far the greatest portion of the organ and contains an unusually large amount of connective tissue, in which are running great numbers of minute canals, for the most part empty. Lymphoid and polynuclear cells are not as numerous as usual.

*Liver:* Shows no marked lesion. There is a slight fatty metamorphosis in the cells.

*Kidney:* Capsule not thickened, Malphigian bodies appear normal, the tubules show well marked cloudy swelling and in the medullary portion there is considerable congestion.

*Microscopic Diagnosis:* Thymus-todt. Hypertrophy of the thymus and mesenteric lymphatic glands; necrosis in the germinal centers of the spleen, and mesenteric lymphatic glands (Oertel's lesion), hypostatic congestion in both lungs and cloudy swelling of the kidneys.

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# THE DESIRABILITY OF A MORE PERFECT, MEDICO-DENTAL SCHINDYLESIS

*Read before the Third District Dental Society of the State of New York, Albany, April 20, 1909.*

By SPENCER L. DAWES, M. D.,

*Adjunct Professor of Materia Medica, Albany Medical College; Instructor in Microscopy and Pharmacognosy, Albany College of Pharmacy.*

The medical dictionaries tell us that schindylesis means an articulation by mutual reception, and further, we know that articulation means a joining or fitting together; so what I really mean to talk about to-day is the desirability of a closer joining together of the dental and medical profession through "mutual reception," or rather by means of reciprocity.

To what extremes the pendulum swings; time was when to be a physician not only meant that you were skilled in drugs and draughts; in the diagnosis and treatment of disease; in surgery and the extraction of teeth; but the doctor told fortunes, gazed at the stars and cut hair and shaved faces as well.

For many years, however, the swing of the pendulum has been away from generalization, and the specialist has been the bright particular star upon the horizon until the poor practitioner of medicine, the ordinary family doctor finds himself, figuratively speaking, torn limb from limb, and worst of all each limb seems to be trying much too often to perform, not only its own functions but many of the functions of the entire body. And in this process of evolution, that limb of medicine called dentistry has drifted farther and farther from the parent body, until to-day many of us seem to have forgotten, if some of us ever knew or realized, how often the successful termination of a case depends upon the mutual co-operation of dentistry and medicine.

That the dentist is the most important specialist in the field of medicine, very few will decline to admit, yet references of patients by doctor to the dentist and vice versa are so infrequent among many practitioners, and by the word practitioner I mean both dentist and doctor, as to be readily recalled as remarkable, for I must quite agree with a well-known member of your branch of the profession who said in a recent paper: "All the faults, however, which lie at the bottom of the passive schism between medicine and dentistry must not be laid to the dentist. What is to be thought of the large New York hospitals without an ac-

tive dental visiting staff? One need not, of necessity, be an explicit follower of Hunter to give the patient suffering from pernicious anemia the benefit of an off-chance in the etiology and treatment of the disease, especially in the cases in which the mouth is one mass of rottenness; and yet such is not the custom of New York town."

Many practitioners of medicine seem to be of a mind with William Hazlitt, who, some time in the early part of the last century, "Said a tooth-drawer was a kind of unconscionable knave because his trade was nothing else but to take away those things whereby every man gets his living." As Fossume very correctly says: "Hospitals and hospital practice have been the main factors producing that which is best in medicine, and never can dentistry hope to achieve a scientific and sure basis until it leaves aside its perpetual pulling of teeth and filling of cavities, its inertia towards scientific investigation, its petty state politics, and, entering into the fight, forces the physician to its recognition by superior and well founded methods of diagnosis and treatment. It is only by an accumulated experience that the dentist can hope to occupy and to maintain his share of the common ground, and this experience can be obtained under the present dispensation, only by perfecting the knowledge pertaining to stomatology so that it may become a necessity to medicine in its broadest sense." So long as dentistry remains a separate profession from medicine, so long will differences exist between the medical man and the dentist, so long will dentistry be viewed as the less scientific, so long will its mechanical attainments stand out as paramount and its therapeutic value prove insignificant. When we carefully consider all the aspects of these statements we will have taken the first steps in promoting that schindylesis for which this paper makes a plea.

And let me say, that I make this statement with a due appreciation of the marvelous mechanical skill of the American dentist, for it is his great successes in this line which has had much to do with his neglect of the medical aspects of many of his cases.

That the pendulum has now commenced its return swing is evidenced by the fact that the French Congress of Stomatology makes a special point of the study of the mouth and teeth, and Article 2 of their regulations reads:

Its membership may consist of: 1. All members of the Stomatological Society of Paris, etc. 2. All French and foreign doc-

tors of medicine who are interested in stomatology. 3. *Individuals who, by reason of their work, knowledge or attainments,* shall be admitted by the committee on organization.

In this country the American Medical Association has showed its interest in the subject, not only by making dentists eligible to membership of the Section on Stomatology of that association, but by urging that they become members.

It is not within the scope of this article to discuss in detail dental education, nor do I consider myself competent to do so. And whether or not it would be wise to require the dentist to be also a graduate in medicine, as some of your well-known men are suggesting, I shall not attempt to say, although it seems to me that such action would be somewhat too radical just now.

The New York *Post Graduate* says in its issue for October, 1907: The first dentists of this country were nearly all graduates in medicine. The medical profession made a great mistake that it did not warmly welcome this new specialty taken up by men in its own ranks. It is our fault that all the dentists are not first graduates in medicine, and many of them are. This error will finally be fully corrected. American dentists have made themselves famous throughout the world by their practical and scientific attainments. They were, in the beginning, members of our craft and would have remained so but for our failure to give them a warm welcome. Specialists in medicine were then under the ban.

There can, however, be no doubt that in addition to the knowledge of the primaries, such as anatomy, physiology and kindred subjects which the best schools now require of the student in dentistry, he should have a working knowledge of all diseases which make themselves manifest in symptoms referable to the teeth and mouth.

While I have expressed a doubt as to what preliminary education we should require of the dentist, I have none whatever concerning the medical man, and I feel that as a teacher of medical students I am qualified to give, at least an opinion, for, to-day the average physician knows practically nothing of that all important branch of his science, dentistry.

It is not open to dispute "that every pathologic manifestation in the mouth is due to some systemic derangement," either local or general, yet how much time does the average teacher of anatomy and physiology in the medical college pay to the teeth?

Who ever heard of a teacher of medicine dwelling at any length upon the great variety of disease in which the changes in the teeth, mouth and jaws, were prominent symptoms? What trained lecturer in therapeutics has impressed upon his medical classes that a physician who fails to send a child with an undeveloped lower maxilla or a projecting upper one to a capable dentist is unfit to practice his profession? And worse than all the rest, in what university do we find the teacher of pathology or bacteriology giving the mouth and its appendages *as they relate to the dentist,* more than perfunctory mention, if he gives it that?

I am ashamed to admit, and yet I must, that we yearly graduate from our medical schools men who have never had impressed upon them the fact that often in obscure pathologic conditions, the earliest, and in others the most marked, the surest and most definite of clinical evidence is to be found in the mouth of the patient.

The correction of defects in the teeth or in the jaw may make a healthy individual out of one whose symptoms have defied the doctor's skill, for the old English proverb, "You dig your grave with your teeth," is more often true than we realize. And I am quite sure that a great majority of dentists do not stop to think how much better results they would obtain if they referred a patient apparently anemic, one of an evidently neurotic temperament, or one suffering from some other general and systemic disease to a physician instead of merely treating their teeth, or, as some of them do, following the example of lazy or uneducated physicians, prescribing on their own responsibility, some wonderful proprietary preparation of "pre-digested" iron, or "assimilable" lime salts, (assimilable because of a "great purity of the salt" or "superiority of preparation"), samples of which, with "literature" (?), heaven save the mark! have been left on his office table by some complacent and talkative agent of a generous and charitable drug house.

No man should receive his medical certificate until he has thoroughly learned all that pertains to diseased or abnormal conditions of the mouth, excepting only the technic of the treatment of the teeth with which of course he has no business. Much could be accomplished by having a direct teaching connection between all medical and dental schools, and making a great part of the preliminary education, or rather the first part of the two

courses the same for all, and this, I think is being considered seriously by some of our best educational institutions. I agree with Dr. M. L. Rhein who says: "If a university having both a medical and a dental department would advertise to give students a year's course in both departments for the same tuition fee now required for a separate course in medicine or dentistry, it would be a success. The men who are desirable students would jump at the opportunity to secure such a combined education for one fee; and what difference would it make to the medical faculty if the number of students in their class rooms was twice as great?"

I have thought it not inappropriate to outline the most prominent points connected with the mouth and its appendages which the careful dentist and physician should always observe, together with some of the pathologic conditions which they may indicate, for it has rightly been said that "the mouth is often the keystone of diagnosis."

Pale lips and buccal membrane may and often do indicate anemia, while cyanotic lips suggest grave cardiac disease. Lips which are dry and gaping apart may mean dyspnea due to the heart or lungs, while the mouth breathing child with undeveloped nose has, as a rule either adenoid growths or some nasal deformity. Mucus patches on the lips or in the mouth and fissures or their scars suggest hereditary syphilis. Pigmentation of the buccal cavity is seen in many grave constitutional disturbances such as Addison's disease, grave anemias and jaundice. An alteration in the salivary secretion accompanies many kinds of poisoning, as well as being an early symptom of variola, mumps and quinsy. A fetid breath, when not the direct result of decayed teeth may mean nasal, pulmonary or digestive disturbances. A grinding of the teeth, while popularly supposed to be a "sign of worms," is usually due to intestinal disturbances. Swollen, easily bleeding gums are seen in acute and chronic mercury poisoning, after using the iodides and bromides, and in scurvy. A blue-grey line at the junction of the teeth and gums, and on the latter, which should not be confused with the dark discoloration due to excessive smoking, is a leading symptom of lead-poisoning. The tongue is pallid in anemia, blue in cyanosis; the strawberry tongue occurs in scarlet fever; it is yellow in jaundice, has black spots in Addison's disease, shows mucus patches in syphilis and is often discolored with drugs. Koplik's spots on

the lips and cheeks are often the first sign of measles, while the earliest indication of many of the acute anginas such as diphtheria and scarlet fever are first noticed in the pharynx and on the tonsils.

I have purposely left the teeth for the last because of their importance. Inspection of one hundred thousand school children has showed that twenty-six thousand seven hundred seventy, or nearly twenty-seven per cent. had decayed teeth and many of them were innocent of the proper functions of the tooth-brush. The Hutchinsonian teeth, variously described by different authors, are those which are small, stand apart, are rounded and peggy; usually exhibit at the border a broad, shallow notch or several serrations; have a dirty-grayish surface without polish, and are rarely smooth; wear down from deficient enamel; which signs apply almost exclusively to the incisors and canines and are observed chiefly in second dentition. This condition is almost pathognomonic of syphilis. Rachitic erosions of the teeth are frequently associated with lamellar cataract, and various trophic changes. Rachitic teeth, so-called, are characterized by transverse and longitudinal grooves with uneven enamel which rapidly wears off on account of its uneven distribution. Sir Frederick Treves says that there is good reason to believe that neglected teeth are largely responsible for the increase in appendicitis in late years. We are all of us familiar with the dental disturbances of pregnant women and the modern obstetrician always refers his patient as soon as she consults him, to the dentist. Carious teeth are merely "culture tubes," containing stock cultures for the development of millions of disease producing germs and poisoning the "fount of life from its very source." Trigeminal neuralgia, as well as other forms are more often cured by the dentist than by the physician. That the correction of a deformed palatine arch, of irregular and improperly articulating teeth is a better investment for the child than government bonds, is the opinion of careful observers, both medical and dental.

And so I might go on, prolonging the list, as there are many more, for;

> "Of all our pains, since man was curst,
> I mean of body, not the mental,
> To name the worst among the worst,
> The dental sure is transcendental."

—Hood.

The true solution of the problem lies in a more thorough and a broader education of both the dentist and the doctor in all those subjects in which the two branches of the profession articulate. In careful selection by the physician of a dental consultant and by the dentist of a medical confrère, so that each can refer to the other appropriate cases to the everlasting good of his patient, and certainly with no harm to himself; or, in the words of a recent writer, "Let the physician choose his consulting dentist with the same care that he does his consulting surgeon—with more care if possible—for all his patients will have to visit a dentist, while only a small proportion will need surgical intervention. Let him keep abreast to a small extent of dental literature, not necessarily the most technical, but the general literature. Let the dentist think and work in terms scientifically interchangeable with the pysician; then, and then only, will the common ground need no defining."

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## ALBANY HOSPITAL.

### Seventh Report of Pavilion F, Department for Mental Diseases, for the Year Ending September 30, 1909.

By J. MONTGOMERY MOSHER, M. D.,

*Attending Specialist in Mental Diseases.*

*To the Board of Governors:—*

I have the honor to present the seventh report of the operations of Pavilion F, for the year ending September 30, 1909.

There remained in the Pavilion on October 1, 1908, fifteen patients—four men and eleven women. There have been admitted one hundred and fifteen men and eighty-two women. The whole number of patients under treatment was, therefore, two hundred and twelve.

There have been discharged one hundred and ninety-nine patients,—one hundred and thirteen men and eighty-six women—and there remained in the Pavilion at the end of the year, six men and seven women.

The following tables show the forms of disease and the results of treatment for the year, and since the opening of the Pavilion:

TABLE I.—Showing the Forms of Disease and the Results of Treatment for the Year Ending September 30, 1909.

| Form of Disease. | Recovered | | Improved | | Unimproved | | Died | | Remaining | | Total | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M | W | M | W | M | W | M | W | M | W | M | W | |
| Acute delirium | 2 | 2 | 1 | 1 | ... | 1 | ... | ... | 1 | ... | 4 | 4 | 8 |
| Confusional insanity | 1 | ... | 3 | 6 | 2 | 3 | ... | 1 | ... | 1 | 6 | 11 | 17 |
| Melancholia | 1 | 2 | 7 | 4 | 2 | 5 | ... | ... | ... | 2 | 10 | 13 | 23 |
| Mania | ... | 2 | 1 | 2 | 1 | 5 | ... | ... | ... | 1 | 2 | 10 | 12 |
| Primary dementia | ... | 2 | 2 | ... | 4 | 3 | ... | ... | 1 | ... | 7 | 5 | 12 |
| Recurrent insanity | ... | ... | 3 | 1 | 3 | 4 | ... | ... | 1 | ... | 7 | 5 | 12 |
| Chronic delusional insanity | ... | ... | ... | 1 | 3 | 3 | ... | ... | ... | ... | 3 | 4 | 7 |
| General paralysis | ... | ... | ... | ... | 4 | 1 | ... | ... | ... | ... | 4 | 1 | 5 |
| Terminal dementia | ... | ... | 2 | 1 | 7 | 12 | 2 | 1 | 1 | 3 | 12 | 17 | 29 |
| Imbecility and idiocy | ... | ... | 5 | ... | 4 | 2 | ... | ... | ... | ... | 9 | 2 | 11 |
| Acute alcoholic delirium | 15 | ... | 1 | ... | ... | 2 | 3 | ... | 1 | ... | 20 | 2 | 22 |
| Alcoholism | ... | ... | 12 | ... | 1 | 1 | 1 | ... | 1 | ... | 15 | 1 | 16 |
| Uraemia | ... | ... | ... | ... | ... | ... | 1 | ... | ... | ... | 1 | ... | 1 |
| Eclampsia | ... | ... | ... | ... | ... | 1 | ... | ... | ... | ... | ... | 1 | 1 |
| Epilepsy | ... | ... | 1 | ... | 2 | 1 | ... | ... | ... | ... | 3 | 1 | 4 |
| Neurasthenia | ... | ... | ... | 3 | 2 | 4 | ... | ... | ... | ... | 2 | 7 | 9 |
| Hysteria | ... | 2 | ... | 3 | ... | 1 | ... | ... | ... | ... | ... | 6 | 6 |
| Hypochondriasis | ... | ... | 1 | ... | ... | ... | ... | ... | ... | ... | 1 | ... | 1 |
| Organic brain disease | ... | ... | ... | 1 | 3 | ... | ... | ... | ... | ... | 3 | 1 | 4 |
| Myelitis | ... | ... | ... | ... | ... | ... | ... | 1 | ... | ... | ... | 1 | 1 |
| Meningitis | ... | ... | ... | ... | ... | ... | 3 | ... | ... | ... | 3 | ... | 3 |
| Paralysis agitans | ... | ... | ... | ... | ... | ... | 1 | ... | ... | ... | 1 | ... | 1 |
| Fracture of the skull | ... | ... | ... | ... | ... | ... | 1 | ... | ... | ... | 1 | ... | 1 |
| Multiple neuritis | ... | ... | 1 | ... | ... | ... | ... | ... | ... | ... | 1 | ... | 1 |
| Pneumonia | ... | ... | ... | ... | ... | ... | 1 | ... | ... | ... | 1 | ... | 1 |
| Chlorosis | ... | ... | ... | ... | ... | 1 | ... | ... | ... | ... | ... | 1 | 1 |
| No diagnosis | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 3 | ... | 3 |
| Totals | 19 | 10 | 40 | 23 | 38 | 50 | 13 | 3 | 6 | 7 | 119 | 93 | 212 |

TABLE II.—Showing the Forms of Disease and the Results of Treatment Since the Opening of the Pavilion, February 18, 1902.

| Form of Disease. | Recovered | | Improved | | Unimproved | | Died | | Remaining | | Total | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M | W | M | W | M | W | M | W | M | W | M | W | |
| Acute delirium | 25 | 38 | 10 | 12 | 3 | 7 | 9 | 9 | 1 | ... | 48 | 56 | 104 |
| Confusional insanity | 7 | 2 | 9 | 14 | 8 | 5 | 4 | 3 | ... | 1 | 28 | 25 | 53 |
| Melancholia | 19 | 25 | 32 | 64 | 31 | 67 | 1 | 3 | ... | 2 | 83 | 161 | 244 |
| Mania | 5 | 12 | 14 | 21 | 16 | 26 | 1 | ... | ... | 1 | 36 | 60 | 96 |
| Primary dementia | 2 | 4 | 9 | 4 | 26 | 8 | ... | ... | 1 | ... | 38 | 16 | 54 |
| Recurrent insanity | ... | ... | 8 | 11 | 9 | 11 | ... | ... | 1 | ... | 18 | 22 | 40 |
| Chronic delusional insanity | ... | ... | 1 | 4 | 22 | 28 | ... | ... | ... | ... | 23 | 32 | 55 |
| General paralysis | ... | ... | 2 | ... | 30 | 2 | 2 | ... | ... | ... | 34 | 2 | 36 |
| Terminal dementia | ... | ... | 20 | 21 | 70 | 68 | 17 | 14 | 1 | 3 | 108 | 106 | 214 |
| Imbecility and idiocy | ... | ... | 19 | 8 | 17 | 18 | ... | ... | ... | ... | 36 | 26 | 62 |
| Acute alcoholic delirium | 156 | 10 | 24 | 6 | 3 | 2 | 19 | 2 | 1 | ... | 203 | 20 | 223 |
| Alcoholism | 19 | 5 | 109 | 8 | 8 | 3 | 1 | ... | 1 | ... | 138 | 16 | 154 |
| Drug addiction | 6 | 4 | 6 | 5 | 2 | 3 | 1 | 2 | ... | ... | 15 | 14 | 29 |
| Ptomaine poisoning | 1 | 2 | ... | ... | ... | ... | ... | ... | ... | ... | 1 | 2 | 3 |
| Uremia | ... | ... | 1 | ... | ... | ... | 6 | ... | ... | ... | 7 | ... | 7 |
| Eclampsia | ... | 1 | 1 | ... | ... | 1 | ... | 1 | ... | ... | 1 | 3 | 4 |
| Epilepsy | ... | ... | 10 | 2 | 11 | 4 | ... | ... | ... | ... | 21 | 6 | 27 |
| Neurasthenia | 3 | ... | 18 | 9 | 4 | 11 | ... | ... | ... | ... | 25 | 20 | 45 |
| Hysteria | 2 | 4 | 1 | 14 | 1 | 1 | ... | ... | ... | ... | 4 | 19 | 23 |
| Chorea minor | 1 | 1 | ... | ... | 1 | 1 | ... | ... | ... | ... | 2 | 2 | 4 |
| Exophthalmic goitre | ... | ... | ... | 1 | ... | ... | ... | ... | ... | ... | ... | 1 | 1 |
| Nervousness | ... | 1 | ... | ... | ... | ... | ... | ... | ... | ... | ... | 1 | 1 |
| Hypochondriasis | ... | ... | 9 | ... | 2 | ... | 1 | ... | ... | ... | 12 | ... | 12 |
| Organic brain disease | ... | ... | 10 | 4 | 7 | 4 | 5 | 3 | ... | ... | 22 | 11 | 33 |
| Cerebral concussion | ... | ... | 3 | ... | ... | ... | ... | ... | ... | ... | 3 | ... | 3 |
| Oedema of the brain | ... | ... | ... | ... | 1 | ... | 1 | ... | ... | ... | 2 | ... | 2 |
| Locomotor ataxia | ... | ... | ... | 2 | ... | 1 | ... | ... | ... | ... | ... | 3 | 3 |
| Myelitis | ... | ... | ... | ... | ... | ... | ... | 2 | ... | ... | ... | 2 | 2 |
| Cerebro-spinal meningitis | 1 | ... | ... | ... | ... | ... | ... | ... | ... | ... | 1 | ... | 1 |
| Meningitis | ... | ... | ... | ... | ... | ... | 4 | ... | ... | ... | 4 | ... | 4 |
| Multiple neuritis | ... | ... | 1 | ... | ... | 1 | ... | ... | ... | ... | 1 | 1 | 2 |
| Paralysis agitans | ... | ... | ... | ... | ... | ... | 1 | ... | ... | ... | 1 | ... | 1 |
| Hydrophobia | ... | ... | ... | ... | ... | ... | 1 | ... | ... | ... | 1 | ... | 1 |
| Tuberculosis | ... | ... | ... | ... | 2 | 1 | 1 | ... | ... | ... | 3 | 1 | 4 |
| Typhoid fever | ... | 1 | ... | ... | ... | ... | ... | ... | ... | ... | ... | 1 | 1 |
| Jaundice | ... | ... | ... | ... | ... | ... | ... | 1 | ... | ... | ... | 1 | 1 |
| Pneumonia | ... | ... | ... | ... | ... | ... | 2 | 1 | ... | ... | 2 | 1 | 3 |
| Pernicious anaemia | ... | ... | ... | 1 | ... | ... | ... | 1 | ... | ... | ... | 2 | 2 |
| Chlorosis | ... | ... | ... | ... | ... | ... | ... | 1 | ... | ... | ... | 1 | 1 |
| Septicaemia | ... | ... | ... | ... | ... | ... | ... | 1 | ... | ... | ... | 1 | 1 |
| Gastro-enteritis | ... | ... | ... | ... | ... | ... | 1 | ... | ... | ... | 1 | ... | 1 |
| Fracture of skull | ... | ... | ... | ... | ... | ... | 4 | ... | ... | ... | 4 | ... | 4 |
| Multiple fibromatosis | ... | ... | ... | ... | ... | ... | ... | 1 | ... | ... | ... | 1 | 1 |
| Malingering | ... | ... | ... | ... | 1 | ... | ... | ... | ... | ... | 1 | ... | 1 |
| No diagnosis | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 12 | 8 | 20 |
| Totals | 247 | 100 | 317 | 211 | 275 | 274 | 82 | 44 | 6 | 7 | 939 | 644 | 1583 |

Cases of mental disorder fall naturally into two groups, those representing an acute disease, from which recovery may be sought, and those representing a permanent degeneration of the mind. The latter group is recruited from two sources, first, those patients whose defect is inherent, revealing a natural incapacity of the mind to meet the demands and exigencies of life, and of contact and competition with society; and second, patients naturally competent, who have been afflicted with an acute mental disease, from which recovery has not followed. The defect remains as a permanent disorganization, and may be designated, for the purpose of analogy with the results of purely physical disease, a "mental scar." The conduct of patients so afflicted is not consistent with commonly accepted standards, and must be regulated or controlled by a superior intelligence. It is so far removed from required conditions as to constitute either a menace to the safety of the community or a reflection upon its charity, and it is now an accepted fact of our civilization that a manifestly crippled or defective individual should not be permitted to suffer. The proper regulation and care of mental dependents has consequently long exercised the public conscience, and has been the subject of discussion and legislation. As the spirit of a community is thought to be represented by its laws, it is interesting to note how this class has been regarded at different epochs in legislative progress, and for that purpose a study has been made of the laws in force at different periods in the State of New York.

The first statute of which record has been found became a law in 1788, under the title, "An Act for apprehending and punishing disorderly persons," and read as follows:

"*Whereas*, There are sometimes persons who, by lunacy or otherwise, are furiously mad, or are so far disordered in their senses that they may be dangerous to be permitted to go abroad; therefore, be it enacted that it shall and may be lawful for any two or more justices of the peace to cause to be apprehended and kept safely locked up in some secure place, and, if such justices shall find it necessary, to be there chained, if the last place of legal settlement be in such city, or in any town within such county."

This law is not now, of course, in operation, but is of interest to us of the present day, not only as representing the sentiment in our state of a century and a quarter ago, but also as the

starting point of the legislation which followed. Nor is it too much to say that while subsequent legislation has greatly modified its provisions in the direction of greater charity and benevolence, the tone of suspicion and subjugation still remains. Comparisons are not always pleasant or advisable, and yet it is difficult to comprehend the standard of repression set by New York forty years after the neighboring state of Pennsylvania had established a high-class hospital for the care and treatment of persons "distemper'd in mind."

In 1806 the "hospital in the city of New York" is recognized in a statute "to enlarge the same by erecting additions thereto, for the more convenient accommodation of the sick and disabled, and particularly, to provide suitable apartments for the maniacs, adapted to the various forms and degrees of insanity."

In 1827 there was a hint of the distinction between crime and insanity, in a statute providing that "No lunatic shall be confined in any prison, gaol, or house of correction, or confined in the same room with any person charged with or convicted of any criminal offence;" and in the Revised Statutes of 1827–'28, "It shall be the duty of the overseers of the poor of the city or town where any lunatic or mad person shall be found, to apply to any two justices of the peace of the same city or town, who, upon being satisfied upon examination, that it would be dangerous to permit such lunatic to go at large, shall issue their warrant directed to the constables and overseers of the poor commanding them to cause such lunatic or mad person to be apprehended, and to be safely locked up and confined in such secure place as may be provided by the overseer of the poor."

In 1838 county poorhouses and private and public county asylums and the lunatic asylum in the city of New York were recognized.

In 1842 laws were passed relating to the first state institution for the insane, known as the "State Lunatic Asylum," at Utica, and it was provided that "No patient shall be admitted—except upon the order of some court justice, judge or supreme court commissioner, without lodging with the superintendent, first, a request * * *, and second, a certificate dated within two months, under oath, signed by two reputable physicians * * *." In this law the phrase was used "confinement

under the statute." The State Lunatic Asylum at Utica was the outward and visible manifestation by the State of its obligation to the constantly increasing number of dependents, the medical aspects of mental disease were acknowledged, and legal provision was made for the discharge of patients who had recovered. Patients who failed of recovery after treatment administered during "confinement under the statute," were returned to the county poorhouse, where the number became so great and the abuses so flagrant as to arouse public sentiment, and in 1865 was passed the organic act of the Willard Asylum for the Chronic Insane; and to this institution the chronic insane pauper patients were required to be committed.

In 1874 a new and comprehensive lunacy act became a law. It required that "No person shall be committed to or confined as a patient in any asylum, public or private, in any institution, home or retreat for the care and treatment of the insane, except upon the certificate of two physicians, under oath, setting forth the insanity of such person. But no person shall be held in confinement in any such asylum for more than five days, unless within that time such certificate be approved by a judge or justice of a court of record of the county or district in which the alleged lunatic resides, and said judge or justice may institute inquiry and take proofs as to any alleged lunacy before approving or disapproving of such certificate, and said judge or justice may, in his discretion, call a jury in each case to determine the question of lunacy."

As the present day operations in this department are made under "The Insanity Law" of the State, a revision and reenactment of all the laws relating to the insane, not essentially differing in principle from the law of 1874.

There are thirteen state hospitals and twenty-three private hospitals for the insane having a total population of 28,648 patients. (Statistics of 1907.) Commitment to these institutions is on a "certificate of lunacy," which "must show that such person is insane," and "contain the facts and circumstances upon which the judgment of the physicians is based and show that the condition of the person examined is such as to require care and treatment in an institution for the care, custody and treatment of the insane." All of the commitment papers in the case are to be presented to the person in charge of the institution, and verbatim copies are to be forwarded and filed in the State Capitol.

In 1908 a law was passed permitting voluntary admission to State hospitals for the insane, and under this law seventy-one patients were admitted.

The recital of these laws appears somewhat tedious at first glance, but is necessary for the revelation of the underlying principle. Starting with the chaining of dangerous persons they end with the judicial confinement of the insane under certificates of lunacy. Whatever the humane purpose, the ultimate result is a legal declaration of lunacy, from which every man, no matter how sorely pressed, revolts. They deal essentially with the class of persons who require custody, and are framed for this purpose rather than in regard of the enlightened consideration of a patient with an acute mental disease for whom early and proper treatment predicates recovery.

From 1788 to 1865, and even later, it was necessary to provide some place for defectives who were either at large or improperly maintained in poor-houses. There now appear acute cases of mental disease, following worry, strain, privation, fever, or other mental or physical ailment, who are restored to health by the removal of morbid conditions and the recovery of normal vital functions. The treatment of these patients is purely a medical question, and neither they nor their friends require the assistance of a court. Nor do they wish to be declared lunatics, and to have placed upon file in the State Capitol a certificate under oath of their friends and physicians showing the peculiar words and actions of a harmless delirium, their habits and the records of their lives and of their ancestors—an array of facts which may at any time be brought forward to embarrass action in the making of documents, the execution of deeds, obtaining employment and the general conduct of business. "Whenever I hear anyone arguing for slavery," said President Lincoln, "I feel a strong impulse to see it tried on him personally."

The purpose of the law is the protection of the insane and of the community from the acts of the insane. It has been found difficult to send patients to hospitals for the insane because of the aversion from a declaration of lunacy with its attendant evils, and proper early treatment has been neglected, until the disease is so far advanced as to prejudice or destroy the prospect of recovery. And there has been no general provision for early treatment. These facts led to the establishment of

Pavilion F in 1902, as a department in a general hospital where patients threatened with mental disease, or in an early stage, might have the benefit of the resources of a first-class general hospital, where the mental symptoms of physical disease might have as full consideration as the physical disease itself, and where none of the complicated legal technicalities should operate to the detriment of the restoration of health. It was to emphasize the medical features of mental disease, as contradistinguished from the legal features of mental defect.

A review of the ages of patients reveals some interesting facts. From a psychological basis the epochs of life are those of adolescence, of maturity and of old age. The adolescent period may be stated to be from fifteen to twenty-five years. Considerable study has been given in the last ten years to the mental disorders of adolescence, and it is a peculiarly susceptible period. Some adolescents appear to yield to the violence of the emotions without definite exciting cause; others yield easily to slight causes. The nervous and mental symptoms are characteristic, and the outlook is uncertain. The attention of the Pavilion has been directed to adolescent cases on account of the unusual number of patients under twenty-five years of age. Thirty-three patients, or seventeen per cent of the admissions were of this class. Of these thirty-three patients eight were congenitally defective, and had revealed lack of mental development through childhood. The others included four cases of hysteria, one of chlorosis, two of neurasthenia, one of alcoholism, one of general paralysis, the remaining sixteen presenting symptoms of acute mental disease. Of these sixteen cases eight were restored, and eight did not regain health during the short period under treatment. It is probable that some of these patients eventually recovered, giving a percentage of over fifty of satisfactory results. Adolescence differs from other periods of life in the absence of the stress and burden which later is productive of mental disorder. Its affections must be regarded as inability of the nervous system to meet the simple demands of growth. To condemn the adolescent to permanent disability appears a harsh judgment, and the experience of the year demonstrates that the general belief in incurability is not warranted.

DISCHARGES.

Of the one hundred and ninety-nine patients discharged, twenty-nine recovered and sixty-three were improved. The

percentage of cases distinctly benefited is forty-six. Since the opening of the Pavilion the percentage of cases discharged as recovered and improved has been fifty-five. Eighty-eight patients were discharged unimproved and sixteen died. The causes of death were: exhaustion from acute alcoholic delirium, two; multiple neuritis, two; meningitis, three; Bright's disease, one; pneumonia, one; spinal caries, one; rupture of intestine, one; fracture of skull, one. One patient died on admission, and the case was at once placed in the hands of the coroner.

### THE CONDITION OF THE PROPERTY.

During the summer the first story, the wards for women, was renovated. The walls were painted and floors and furniture varnished, so that there has been no falling off in repairs. The same attention is promised in the immediate future for the wards for men.

### ENDOWMENT.

The small endowment fund remains as before. It is to be hoped that increase in the hospital resources will soon provide for the maintenance of indigent patients beyond the demand upon the public funds. This need is particularly manifest in mental cases, many of whom are the victims of privation and want. Restoration of mental health often follows the relief of physical distress, and here lies a particularly responsive opportunity to the assistance given by the charitably disposed. The removal of patients who are passing out of the acute attacks into a state of convalescence is unfortunate, and acts unfavorably; yet this is of frequent occurrence, and limits the usefulness of the Pavilion, and is a painful experience when it is known that the slight cost of a few weeks' care will secure the return of health.

### FINANCIAL STATEMENT

| | |
|---|---|
| Received from public patients | $985 00 |
| Received from private patients | 6,105 76 |
| Total | $7,090 76 |

| | |
|---|---|
| The number of day's treatment | 5,074 |
| The average income for each patient per week | $9 78 |

ACKNOWLEDGEMENT.

It may not be inappropriate to mention the favorable comment attending the administration of this department of the hospital, as it is surely a gratification that so many kind expressions have been had from sources well qualified to judge. Alienists of distinction have visited the Pavilion and have praised its work. The authoritative publications on mental diseases, the English *Journal of Mental Science* and the American *Journal of Insanity* have given its work the high compliment of approval, and medical journals generally have accepted it as a needed and justifiable extension of hospital work. This may prove an encouragement to the Governors of the Hospital who have carried the extra burden and have been attentive to its demands.

Acknowledgement is also due the public officials of the city and county of Albany. To the Commissioner of Charities and Corrections, Hon. William H. Storrs, we are under repeated obligation, for the careful and appreciative administration of such affairs of his office as place him in relation with the Hospital,

The personal interest of our friends has been abundantly manifested. Shortly after the Pavilion was opened a book-case and books were presented to the men's ward by Dr. Henry Hun, and a similar gift was made to the women's ward by Mr. and Mrs. P. K. Dederick, Jr. These have proved most serviceable and are in constant use. Subscriptions to the *Argus*, *Munsey's Magazine*, *The Argosy*, *The Strand Magazine*, *The Ladies' Home Journal* and *Pearson's Magazine* have been continued by Mr. and Mrs. P. K. Dederick, Jr., and subscription to *McClure's Magazine* has been given by a "friend." A most acceptable addition to the library was made by a gift from Mrs. Martin H. Glynn, consisting of thirteen books. From the estate of the late Charles L. Palmer, seven oil paintings were received, which have added materially to the agreeable appearance of the patient's room. Mrs. Wm. J. Coughtry brought fruit; Mrs. Stewart Stone, Easter flowers; Miss Diefendorf, Mrs. Thomas Hurst and Rev'd Mr. Gage, cut flowers; Miss Whitney, a sofa pillow; and from Mrs. J. W. Tillinghast and Mrs. Frederick Tillinghast were received packages of magazines.

## Clinical and Pathological Notes

### *The Report of a Case of Amebic Dysentery.* *By* H. W. Carey, A. B., M. D., *Troy, N. Y.*

*Read before the Third District Branch of the Medical Society of the State of New York, Hudson, N. Y., October 5, 1909.*

While Amebic Dysentery is a fairly common disease in the sea-ports, particularly in the southern part of this country, it is very rarely met with in the northeastern part of New York. So far as I have been able to determine only one other such case has been reported from the upper Hudson district, the one reported by Ward in the January number of the Albany Medical Annals for 1903.

The patient Mr. T. A. was brought to me by his attending physician Dr. R. G. Edmans of Troy for examination for Pernicious Anemia. The following is a brief history of the case.

Mr. T. A. admitted to the Samaritan Hospital, Troy, June 23rd 1909, age 31, occupation, butcher.

Complaints: Diarrhea, pain in the abdomen and shortness of breath.

Family history: Unimportant.

Past history: Has had the usual diseases of childhood but no serious illness such as pneumonia, typhoid, rheumatic fever or pleurisy. He has been an excessive smoker and a moderate drinker. He gives no history of lues. His top weight is 165 lbs. but at present weighs 126 lbs.

At the onset of his illness he was serving in the regular army in the Philippines in the 29th Infantry and received his discharge in 1901.

Present illness: He was taken sick in 1901 in Dumanjug, Cebu, P. I. It began gradually with a diarrhea, present one day and absent the next. After a few days he averaged 40–50 stools a day. At first he noticed no blood or mucus in the stools. He was admitted to the hospital at Dumanjug and treated with large doses of ipecac. During his stay of five months in the Hospital he improved somewhat but evidently was not cured as he was sent to San Francisco and discharged.

Since his return to Troy in 1901 he has had a continuous

dysentery averaging 10–20 stools a day. During this period he has been under a large variety of treatments but does not recollect that the stools have ever been examined or that any positive diagnosis of amebic infection has been made. Periods of improvement have been followed by relapses until at present the abdominal pain and tenesmus is extreme and he is hardly able to walk.

Physical examination: A poorly nourished and emaciated young man of medium height. Expression anxious. The lips, conjunctivae and finger tips appear almost bloodless. The pupils are equal and slightly dilated. The cranial nerves are intact and the superficial and deep reflexes are normal.

Lungs: The chest is moderately emphysematous and a small area of diminished resonance at the right apex front and back is found over which the expiration is prolonged. No rales are heard after cough. Elsewhere the resonance and breath sounds are unchanged.

Heart: The area of superficial cardiac dullness is very small and entirely to the left of the sternum. The point of maximum impulse is not seen but can be felt in the fifth interspace six centimeters to the right of the midsternal line. The sounds are all clear but weak. No adventitious sounds are heard.

Liver: The dullness begins at the fifth rib in the midclavicular line and extends to the costal margin. The edge cannot be felt. There is only slight tenderness over the liver.

Abdomen: The superficial fat is completely atrophied. The shape is scaphoid. No peristalsis is seen. When palpated considerable tenderness is felt all along the colon. Aside from this nothing of note could be found in the abdomen.

Stools: Before entering the Hospital the patient was instructed to bring a specimen of the stools for examination but while in two such specimens there was a large content of mucus and blood no motile amebae could be found. Subsequently a soft rectal tube was introduced into the rectum and the mucus adherent to the eye of the tube was examined immediately. On warm slides amebae in plenty were found actively motile and moving across the field. No other form of intestinal parasite was found and no ova.

The treatment consisted of putting the patient at rest in bed, a milk diet and colonic irrigations of normal salt solution,

quinine sulphate and crude oil after the method suggested by Hanes. The irrigations were given in the knee-chest position first introducing the salt solution to cleanse the mucous mem-, brane of the bowel and then using a liter of the quinine sulphate solution, beginning at 1-1500 and gradually increasing the strength up to 1-500. Upon this treatment the patient slowly began to improve but after six weeks seemed to improve so slowly that the crude oil irrigations were substituted for the quinine. These were used for three weeks beginning with eight ounces of the oil to a quart of soap suds and increasing the oil up to twelve ounces to the quart. While the oil seemed easier to be retained it nauseated the patient so much that it had to be discontinued and the quinine resumed.

Since the resumption of the quinine the patient's condition has rapidly improved until at the present time the stools are solid, contain no blood or mucus and average one a day. The salt irrigation is generally returned free of mucus although occasionally some has been found. Examination of the mucus recently has shown no amebae.

The general condition has shown a marked improvement, his weight has increased sixteen lbs. The temperature present on admission has been normal since the first week. The blood picture has shown a similar improvement; on admission the hemoglobin was eighty per cent and red blood cells 4,500,000; at present the hemoglobin is ninety per cent and the red blood cells 6,050,000. He will be discharged within the next few weeks symtomatically cured unless some unforeseen occurrence makes this unwise.

As I stated in the preface to this report this is the second case of amebic dysentery reported from this section of the State. Both cases were imported from the Philippines.

Although no endemic cases have so far been discovered in this district the occurrence of such cases in Buffalo (reported by Stockton) and New York (reported by Patterson) makes it more than probable that they exist. In one of Patterson's cases the infection apparently came from drinking the river water in the neighborhood of Fishkill.

The opinion generally held that amebic infection is limited to the tropics and southern states of this country is changing as the distribution of the disease is becoming better understood. In the cases collected by Patterson it was found that endemic

infections had been found in most of the New England and Middle Western States.

REFERENCES.

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HANES, G. S. Amebic Dysentery. *Journal of the American Medical Association*, June 19, 1909.

PATTERSON, HENRY S. Endemic Dysentery in New York, with a review of its distribution in North America. *American Journal of the Medical Sciences*, August, 1909.

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# Editorial

> To say the truth, every physician almost hath his favourite disease, to which he ascribes all the victories obtained over human nature. The gout, the rheumatism, the stone, the gravel, and the consumption, have all their several patrons in the faculty; and none more than the nervous fever, or the fever on the spirits. And here we may account for those disagreements in opinion, concerning the cause of a patient's death, which sometimes occur, between the most learned of the college; and which have greatly surprized that part of the world who have been ignorant of the fact we have above asserted.
>
> HENRY FIELDING.
>
> *The History of Tom Jones.*

✠ ✠ ✠

**"The Murder Case of the Future."**

The death of Dr. Balch recalled spicy incidents in his active life, many of which will be remembered by the physicians, students and lawyers with whom he was associated. During the last year the death of Jesse Billings was reported and his trial for the murder of his wife, a celebrated case, was again brought to mind. Mrs. Billings was shot one evening while sitting at the window after supper, the gun having been fired from a place on the lawn. The expert questions were upon gun-shot wounds, and the effects of bullets in general, contributory to the establishing of an alibi. A few observers were interested and participated in the experiments in the College, where the gun alleged to have been used by Mr. Billings was handled by its manufacturer, and the dissecting room was made the theatre for the reproduction of the tragedy. The head through which the bullet

passed was cleaned, the fragments of bones wired, and the specimen prepared for presentation in court, in one night. Other experiments were upon the relative effects of missiles when fired through a series of panes of glass, and of a great number of parallel sheets of linen. The trial attracted the attention of *Puck*, and the following parody upon the medical experts appeared. There is no difficulty in discerning the personalities of Dr. Jacob S. Mosher and Dr. Lewis Balch.

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## THE MURDER CASE OF THE FUTURE.

SARATOGA, N. Y.,
May 18th, 1980.

[*By Telegraph to* PUCK.]

THIS has been a dull day in the great Killings Murder trial. The defence has reached the seventy-ninth day of its innings, and the interest in the testimony begins to flag, while the witnesses themselves are of a less enterprising order, and have very little that can be called thrilling to say for themselves.

### THE FIRST WITNESS

was Professor Slosher, of Peoria University. The Professor was expected to prove that the howitzer ball which pierced the murdered Mrs. Killing's head was fired from a 4th of July cartridge-pistol. The Professor stated that he had made extremely exhaustive experiments.

He had practiced on a skeleton at twenty-five paces, with a mitrailleuse. He was ready to swear that a howitzer-ball would penetrate bone. He based his assertion upon the fact that the projectile, after passing entirely through the skeleton, between the ribs, had smashed a stone wall a hundred yards away. A howitzer-ball did not materially lose in weight or size after its discharge from the cannon. In the course of his experiments one of his missiles had struck a small boy on the street, and the small boy had assured him of the before-mentioned fact. [Objected to as hearsay testimony; objection sustained.] He had tried to pass the howitzer-ball used in his experiments through the

EYE OF A NEEDLE;

but it would not go through. Considered himself an expert on howitzer-balls. Had eaten fish-balls, and had once lent a quarter to a man named Howitzer. Howitzer never paid him back. [Objected to as irrelevant; objection sustained.] The Professor had further experimented on the penetrative power of projectiles in connection with glass. Had fired through a window in a green-house. Did not know how thick the glass was. Owner of green-house came out and chased him with a club. Club was about three inches thick. [Objected to as irrelevant; objection sustained.] The Professor summed up by saying that the propulsive force of a pistol depended upon the amount of powder in it.

CROSS-EXAMINED:

The Professor said, in answer to the query of the prosecuting attorney, that the quality of the powder made a difference. If the powder was half-sand, the projectile would go only half so far as it would if the powder were all powder. Thought the man who bought the powder would go a great deal further to take it out of the dealer. Professor Slosher had never tried to pass the howitzer-ball through a circus-hoop. Supposed it would go through. Did not wish to be considered an expert in circus-hoops. Did not believe that a howitzer-ball would penetrate eighteen iron-clads placed endwise. Might penetrate seventeen. Was sure it would penetrate a human skull. There was a difference in skulls. Had never said to a man named Smith, of Kalamazoo, that there was no difference in skulls. Some skulls were

HARDER THAN OTHERS.

Scotch skulls might resist a howitzer-ball. Never tried the experiment. Never found a Scotchman willing to let him try it. Thought that if a howitzer-ball were fired out of a Krupp gun, it would not go straight.

These admissions were regarded as very damaging to the accused. The next witness was Dr. Smasher, of the Skowhegan Polytechnic School. The Doctor's testimony went to prove that the howitzer-ball found in Mrs. Killing's brain could only have been fired from a pistol of small calibre. It was his opinion

that the instrument used was a bean-shooter. Doctor Smasher's testimony was rather more interesting than that of the previous witness; and he made a

### Very Pleasant Impression

upon the numerous ladies in the back seats. He testified that he had made several experiments to determine the amount of damage suffered by a projectile of the class described in its passage through the human brain. He had spared no expense in his trials, so as to be on the right side. With the aid of a practical artillery-man, he had fired a howitzer-ball out of a mortar through eleven rows of corpses. He exhibited to the jury the remains of the corpses, which were neatly put up in a small pill-box. After this experiment he had tried another, on a much more comprehensive scale.

He had fired into a cemetery. He was not able to say whether the ball had gone entirely through or not. He believed it to be somewhere about the middle, exactly in the coffin of a man named Wilkinson; but the prejudiced guardians of the place, aided and abetted, he was sorry to say, by the family of the deceased Wilkinson, had refused to let him satisfy his mind by digging. Upon cross-examination the Doctor said that the corpses through which he fired were fresh corpses, procured from New York. He supposed them to be of the average density of corpses. Did not know the formula for determining the relative density of corpses. Had read "Materia Medica," and Guggenheim's "Every Family Its Own Doctor." Had never studied Liebig, Marco Polo, Andrew Jackson Davis, E. Perkins, Gilbert, Sullivan or Poppenhusen.

### These Admissions

told terribly against the Doctor, and the accused appeared depressed. Doctor Smasher continued: his object in making the second test was simply to satisfy his mind. He called himself a conscientious man. Not too conscientious; just conscientious enough. The mortar used in his experiments was a good mortar. He borrowed it of a neighboring druggist. Had no arrangements with the druggist for commission on prescriptions. [Objected to as irrelevant; objection sustained.] Thought no howitzer could have upset the projectile shown

him as at present upset. A howitzer rather preserved a projectile than otherwise. Concluded, from various marks on projectile shown him, that it had been

FIRED FROM A BEAN-SHOOTER.

Specified obliteration of trade-mark and indentation at extreme tip. Did not think that indentation might have been made by man who loaded gun being cross-eyed. Was neither deaf, dumb, blind, nor a habitual drunkard; and had never stolen a horse in Alaska.

THE COURT THEN CLOSED.

The severe handling which the witnesses of Defence have experienced from the Prosecution has made things look black for the accused; and if the Prosecution can succeed in strengthening their case, on surrebuttal, so as to prove that Mr. Killings went round by way of Cohoes and Schenectady after, as they allege, murdering his wife, it is probable that the jury will have great difficulty in coming to a disagreement.

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## Public Health

**Edited by Joseph D. Craig, M. D.**

DEPARTMENT OF HEALTH—ALBANY, N. Y.

ABSTRACT OF VITAL STATISTICS FOR SEPTEMBER, 1909.

*Deaths*

| | 1905 | 1906 | 1907 | 1908 | 1909 |
|---|---|---|---|---|---|
| Consumption | 22 | 9 | 11 | 23 | 9 |
| Typhoid fever | 1 | 0 | 0 | 0 | 0 |
| Scarlet fever | 0 | 1 | 0 | 0 | 0 |
| Measles | 1 | 0 | 0 | 0 | 0 |
| Diphtheria and croup | 0 | 5 | 4 | 0 | 1 |
| Whooping-cough | 1 | 1 | 2 | 1 | 2 |
| Grippe | 0 | 5 | 0 | 0 | 0 |
| Diarrheal diseases | 13 | 5 | 8 | 12 | 9 |
| Pneumonia | 3 | 8 | 9 | 4 | 4 |
| Broncho-pneumonia | 2 | 0 | 3 | 0 | 3 |
| Bright's disease | 19 | 11 | 16 | 16 | 11 |
| Apoplexy | 10 | 5 | 2 | 7 | 5 |
| Cancer | 7 | 7 | 9 | 5 | 10 |
| Accidents and violence | 8 | 11 | 4 | 10 | 13 |
| Deaths over 70 years | 28 | 25 | 25 | 36 | 23 |
| Deaths under 1 year | 23 | 20 | 23 | 26 | 16 |
| Total deaths | 165 | 135 | 140 | 144 | 138 |
| Death rate | 20.06 | 16.51 | 17.02 | 17.51 | 16.78 |
| Death rate less non-residents | 17.75 | 13.74 | 15.07 | 15.32 | 14.34 |

*Deaths in Institutions.*

| | 1905 | | 1906 | | 1907 | | 1908 | | 1909 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Resident | Non-resident | Resident | Non-resident | Resident | Non-resident | Resident | Non-resident | Resident | Non-resident |
| Albany Hospital | 11 | 6 | 5 | 15 | 9 | 9 | 5 | 6 | 9 | 7 |
| Albany County Jail | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Albany Orphan Asylum | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| County House | 3 | 1 | 2 | 1 | 3 | 1 | 3 | 4 | 3 | 0 |
| Homeopathic Hospital | 2 | 1 | 0 | 2 | 4 | 0 | 0 | 4 | 2 | 2 |
| Hospital for Incurables | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| House of Good Shepherd | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Little Sisters of the Poor | 7 | 2 | 3 | 2 | 3 | 0 | 1 | 0 | 3 | 0 |
| Public places | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 |
| St. Margaret's House | 2 | 2 | 2 | 1 | 3 | 1 | 0 | 0 | 3 | 0 |
| St. Peter's Hospital | 3 | 4 | 4 | 1 | 4 | 2 | 4 | 3 | 4 | 6 |
| Dominican Convent | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fifth Precinct | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| St. Francis De Sayles Orphan Asylum | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |

| | |
|---|---|
| Births | 109 |
| Premature births | 13 |

## Bureau of Plumbing, Drainage and Ventilation.

In the Bureau of Plumbing, Drainage and Ventilation, there were one hundred fifty-seven inspections made of which sixty-nine were of old houses and eighty-eight of new houses. There were fifty-three iron drains laid, thirty-one connections to street sewers, thirty-five tile drains, two latrines, forty-nine cesspools, eighty-five wash basins, ninety-four sinks, eighty-one bath tubs, eighty-eight washtrays, one butler's sink four trap hoppers, one hundred twenty tank closets and one stable stand. There were one hundred thirty-three permits issued of which one hundred eight were for plumbing and twenty-five for building purposes. Fifty-seven plans were submitted of which eleven were of old buildings and forty-six of new buildings. There was one house tested with blue or red and there were forty-nine water tests. Seven houses were examined on complaint and thirty-one were re-examined. Four complaints were found to be valid and three without cause.

## Bureau of Contagious Disease.

### August, 1909.

*Cases Reported.*

| | 1905 | 1906 | 1907 | 1908 | 1909 |
|---|---|---|---|---|---|
| Typhoid fever | 12 | 23 | 1 | 12 | 8 |
| Scarlet fever | 3 | 7 | 3 | 5 | 12 |
| Diphtheria and croup | 5 | 12 | 45 | 9 | 8 |
| Chickenpox | 0 | 0 | 1 | 0 | 0 |
| Measles | 2 | 0 | 3 | 0 | 6 |
| Whooping-cough | 0 | 0 | 0 | 0 | 0 |
| Consumption | 4 | 0 | 17 | 31 | 19 |
| Totals | 26 | 42 | 70 | 57 | 53 |

*Contagious disease in relation to public schools:* *None reported.*

Number of days quarantine for diphtheria:
Longest..... 26 Shortest..... 8 Average... 15 5/7

Number of days quarantine for scarlet fever:
Longest..... 46 Shortest..... 24 Average..... 36

Fumigations:
Houses..... 21 Rooms..... 93

| | |
|---|---|
| Cases of diphtheria reported | 8 |
| Cases of diphtheria in which antitoxin was used | 8 |
| Cases in which antitoxin was not used | 0 |
| Deaths after use of antitoxin | 1 |

## Bureau of Contagious Disease.

### September, 1909.

*Cases Reported.*

| | 1905 | 1906 | 1907 | 1908 | 1909 |
|---|---|---|---|---|---|
| Typhoid fever | 18 | 15 | 11 | 4 | 12 |
| Scarlet fever | 6 | 7 | 2 | 9 | 14 |
| Diphtheria and croup | 7 | 20 | 50 | 10 | 7 |
| Chickenpox | 1 | 0 | 2 | 2 | 0 |
| Measles | 1 | 0 | 2 | 0 | 3 |
| Whooping-cough | 1 | 3 | 0 | 0 | 1 |
| Consumption | 0 | 0 | 23 | 35 | 31 |
| Totals | 34 | 45 | 90 | 60 | 68 |

*Contagious diseases in relation to public schools:*

| | *Reported.* D. | S. F. |
|---|---|---|
| Public School No. 15 | | 2 |
| St. Ann's School | | 1 |

Number of days quarantine for diphtheria:
Longest..... 14 Shortest..... 9 Average... 11 1/3

Number of days quarantine for scarlet fever:
Longest..... 34 Shortest..... 14 Average. 26 6/10

Fumigations:
Houses..... 16 Rooms..... 70

| | |
|---|---|
| Cases of diphtheria reported | 7 |
| Cases of diphtheria in which antitoxin was used | 7 |
| Cases in which antitoxin was not used | 0 |
| Deaths after use of antitoxin | 1 |

### Bender Report on Tuberculosis.

| | |
|---|---|
| Positive | 12 |
| Negative | 15 |
| Failed | 0 |
| Total | 27 |

### Tuberculosis.

| | | | |
|---|---|---|---|
| Living cases on record September 1, 1909 | | | 387 |
| Reported during September, 1909: | | | |
| By telephone | 0 | | |
| By Bender | 3 | | |
| By card | 19 | | |
| | | 22 | |
| Dead cases reported by certificate | | 7 | |
| | | | 29 |
| | | | 416 |
| Dead cases previously reported | | 7 | |
| Dead cases not previously reported | | 2 | |
| | | | 9 |
| Living cases on record October 1, 1909 | | | 407 |
| Total tuberculosis death certificates filed September, 1909 | | | 9 |

### Bureau of Pathology.

*Bender Laboratory Report on Diphtheria.*

| | 1905 | 1906 | 1907 | 1908 | 1909 |
|---|---|---|---|---|---|
| Initial positive | 2 | 4 | 29 | 9 | 11 |
| Initial negative | 20 | 16 | 15 | 15 | 29 |
| Release positive | 1 | 6 | 13 | 1 | 6 |
| Release negative | 8 | 16 | 67 | 15 | 1 |
| Failed | 0 | 7 | 8 | 6 | 5 |
| Total | 31 | 49 | 132 | 46 | 52 |

*Test of Sputum for Tuberculosis.*

| | | | | | |
|---|---|---|---|---|---|
| Initial positive | 0 | 0 | 5 | 4 | 8 |
| Initial negative | 0 | 0 | 5 | 10 | 13 |

BUREAU OF MARKETS.

| | |
|---|---|
| Market re-inspection | 101 |
| Public market inspections | 22 |
| Fish markets inspected | 4 |
| Fish peddlers inspected | 1 |

MISCELLANEOUS.

| | |
|---|---|
| Mercantile certificates issued to children | 83 |
| Factory certificates issued to children | 37 |
| Children's birth records on file | 120 |
| Number of written complaints of nuisances | 33 |
| Privy vaults | 2 |
| Plumbing | 5 |
| Other miscellaneous complaints | 26 |
| Total number of dead animals removed | 1,075 |
| Cases assigned to health physicians | 54 |
| Number of calls made | 172 |

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# Society Proceedings

MEDICAL SOCIETY OF THE COUNTY OF COLUMBIA.

The annual meeting of the Columbia County Medical Society was held in Hudson, October 5th, 1909, at the office of Dr. S. V. Whitbeck. The President being absent, Vice-President Louis presided. The following named members were present: Drs. C. G. Rossman, Pomeroy, Johnson, Swift, King, Mesick, Van Hoesen, Whitbeck, Woodworth, and Waterbury. The Minutes of the semi-annual meeting were read and approved as read. The election of officers resulted as follows: President, Louis Van Hoesen of Hudson; Vice-President, R. C. Waterbury, Kinderhook; Secretary and Treasurer, T. Floyd Woodworth, Kinderhook; Censors, Mesick, Pomeroy, King, C. G. Rossman, and Garnsey. It was moved and carried that a committee of three be appointed to change the date of the annual and semi-annual meetings, so fixed as not to conflict with the alumni meeting of Albany Medical College, and the Third District Branch of the State Medical Society; and that the By-Laws be so amended at the next annual meeting of this Society, Pomeroy, Johnson, King, committee. The semi-annual meeting is to be held in Kinderhook, first Tuesday in May, 1909. Adjourned to meet at the State Training School for Girls where the Third District Branch was entertained.

T. FLOYD WOODWORTH, *Secretary and Treasurer.*

# Medical News

Edited by Arthur J. Bedell, M. D.

The Albany Guild for the Care of the Sick—Department of Visiting Nursing—Statistics for September, 1909. Number of new cases, 128; *classified as follows:* dispensary patients receiving home care, 24; district cases reported by health physicians, 5; charity cases reported by other physicians, 50; moderate income patients, 49; old cases still under treatment, 112; total number of cases under nursing care during month, 240. *Classification of diseases for the new cases:* medical, 48; surgical, 8; gynecological, 5; obstetrical under professional care, mothers, 36; infants, 30; eye and ear, 0; skin, 1; throat and nose, 0; contagious diseases in the medical list, 11; removed to hospital, 4; deaths, 6.

*Visits of Guild Nurses* (all departments).—Number of visits with nursing treatment, 1,282; for professional supervisions of convalescents, 411; total number of visits, 1,693; cases reported to the Guild by three health physicians and thirty other physicians, graduate nurses, six, and pupil nurses seven on duty.

*Dispensary Report.*—Number of clinics held, 97; number of new patients, 108; number of old patients, 419. *Classification of clinics held*: surgical, 11; nose and throat, 6; eye and ear, 16; lung, 12; nervous, 3; skin and G. U., 7; stomach, 3; medical, 13; children, 13; gynecological 8.

The Medical Society of the County of Schenectady held a special meeting at the residence of Dr. Frank van de Bogert, 111 Union St., Friday, October 8, 1909 at 8:30 p. m. Dr. Oscar H. Rodgers spoke on "The Relation of the Medical Profession to Life Insurance."

New York Skin and Cancer Hospital.—The Governors of the New York Skin and Cancer Hospital announce that Dr. L. Duncan Bulkley will give an eleventh series of Clinical Lectures on Diseases of the Skin in the out-patient hall of the hospital on Wednesday afternoon, commencing November 3d, 1909, at 4:15 o'clock. The course will be free to the medical profession.

New York and New England Association of Railway Surgeons will hold its nineteenth annual meeting at the Academy of Medicine, New York City, on November 16-17, 1909. A symposium will be presented on the "Causes of Railway Accidents Individualized." The names of prominent lay officials, attorneys, and surgeons from railways all over the country appear on the program, which is very attractive and interesting. All interested in this line of work are cordially invited to attend. President J. M. Wainwright, Scranton, Pa.; Corresponding Secretary, George Chaffee, 338 47th St., Brooklyn, N. Y.

Tuberculosis Hospitals.—Ontario County has made an appropriation for a tuberculosis hospital.

Poughkeepsie has a model day and night camp.

Mr. and Mrs. Rapelyea have endowed a hospital at Elmira, N. Y.

Buffalo, Rochester and Brooklyn have made special provision for similar hospitals.

The Labor Unions of Rome have raised money with which to build a pavilion.

A hospital for tuberculosis for Schenectady County seems assured. The committee appointed to investigate the need of such an institution has reported favorably. The Red Cross has built and maintained a Day and Night camp which has been doing excellent work. Twenty-four patients are now being treated but there will be no provision for them when it is closed in November.

The American Hospital Association held its eleventh annual conference in the New Willard Hotel, Washington, D. C., September 21-24, 1909. A program of considerable interest to all interested in hospital management occupied the entire time and attention of the association.

University Day was celebrated in Schenectady, October 23, 1909, with considerable enthusiasm. Three hundred and fifty of the students from the Albany departments, accompanied by many members of the faculty participated in the exercises. In the College Chapel the following program was rendered: "America," Prayer, Rev. A. Russell Stevenson, D. D., Pastor of the First Presbyterian Church, Schenectady. Address of Welcome, Rev. Charles Alexander Richmond, D. D., Chancellor of Union University. Address, Hon. Simon W. Rosendale, LL. D., President of the Board of Governors of Union University. Songs and Solo. The Union College Glee Club and R. C. Whitney, '13. Addresses, Samuel B. Ward, M. D., Ph. D., Dean of the Albany Medical College; George Lawyer, A. M., Professor of the Law of Contracts, Personal Property and Sales, and Bankruptcy, in the Albany Law College; Solo, B. C. Race, '10, Albany Law School. Addresses by Lewis Boss, A. M., LL. D., Director of the Dudley Observatory, Albany; Willis G. Tucker, M. D., Ph. D., Dean of the Albany College of Pharmacy. Solo, William Ferguson, '10 Union College. Conferring of the Degree of LL. D. upon Frank Smalley, Ph. D., Dean of the Liberal Arts of Syracuse University, presented by Benjamin H. Ripton, Ph. D., LL. D., Dean of Union College. Address by Frank Smalley, Ph. D., LL. D. "Song of Old Union." The visiting student body was entertained in the different fraternity houses and the faculties of the respective schools were given a luncheon by Chancellor and Mrs. Richmond. A student parade through the principal streets of the city was held at 2.30 followed by a football game at 3.30 between Rochester and Union.

Reception to Chancellor Richmond.—The Hon. Simon W. Rosendale, President of the Board of Governors of Union University, invited the members of the faculties of the several departments of the University to meet Chancellor Richmond at the Fort Orange Club, Albany, N. Y., on Tuesday evening, October 19th. More than one hundred members, the teaching force with the trustees of the different departments including the Governor of the State, were present at this very enjoyable occasion.

Favorable Decision by State Board on Tuberculosis Site.—First appeal under amended law. Lieut.-Gov. White, Speaker Wadsworth and State Health Commissioner Porter have announced a favorable decision on the appeal in the matter of the sanatorium the Workmen's Circle, a

national fraternal insurance order, propose building at Liberty, N. Y. This is of interest to the State at large at this time when so many counties are considering building tuberculosis hospitals.

This is the first appeal made under the provisions of the new law regarding the consents required for establishment of hospitals or camps for tuberculosis. According to the provisions of this law, passed largely through the efforts of the State Charities Aid Association, the "Goodsell-Bedell" law which required the consent both of the town board and the county board of supervisors as a condition necessary to the establishment of any hospital or camp for tuberculosis was amended by placing the decision in the hands of the local health officer and the State Commissioner of Health. On failure of these two to agree the matter is to be referred to the board which has just handed down its first decision in the Liberty case. At the time of the first hearing the State Commissioner of Health was agreeable to the establishment of the sanatorium, but the local health officer was against it.

The Workmen's Circle operates in twenty-eight states and has a membership of 27,000 who will support this sanatorium by an individual annual assessment of $1.10, aggregating $29,700. Construction has already been started and the buildings will soon be ready for occupancy. This speedy settlement of the dispute offers a pleasing contrast to the long delay experienced under the former law by the Brooklyn Central Labor Union when three years ago the town board of Brookhaven, L. I., and the county board of supervisors withheld consent to build a sanatorium at Medford, Suffolk county.

The Central Labor Union held the land and paid taxes on it for three years. The State Charities Aid Association, Mr. J. P. Boyle, secretary of the Central Labor Union of Brooklyn, Dr. Livingston Farrand, Rev. John Howard Melish of Holy Trinity Church, Brooklyn, Dr. Horace Greely of the Department of Health and others became interested in obtaining a favorable decision. This was secured under the amended law, and the Central Labor Union is now in a position to build their hospital which will cost $50,000 and will accommodate more than 100 patients.

Pediatrics Changes Hands.—Dr. W. E. Fitch has purchased *Pediatrics* and will henceforth edit this well-known publication. Dr. Fitch has long been connected with medical journalism as editor of *Gaillard's Southern Medicine*, and he will bring to *Pediatrics* a ripe experience both as editor and publisher. He is a graceful as well as a brilliant writer, and has contributed extensively to medical literature. Dr. Fitch contemplates many changes and with a staff of collaborators which includes many of the country's foremost pediatrists, this excellent journal is certain to achieve new success in its special field. Dr. Fitch's name on the editorial page is ample assurance of the high and honorable plane on which *Pediatrics* will be conducted.

American Gynecological Society.—The president of the American Gynecological Society has appointed a committee to report at the next annual meeting in Washington, on the present status of Obstetrical teaching in Europe and America, and to recommend improvements in the

scope and character of the teaching of obstetrics in America. The committee consists of the professors of obstetrics in Columbia University, University of Pennsylvania, Harvard, Jefferson Medical College, Johns Hopkins University, Cornell University and the University of Chicago. Communications from anyone interested in the subject will be gladly received by the chairman of the committee, Dr. B. C. Hirst, 1821 Spruce street, Philadelphia, Pa.

The United States Civil Service Commission announces an examination on November 24, 1909, to secure eligibles from which to make certification to fill a vacancy in the position of medical supervisor in the Indian field service at $250 a month and expenses, and vacancies requiring similar qualifications as they may occur in that service, unless it shall be decided in the interests of the service to fill the vacancy by promotion, reinstatement, or transfer.

The examination will consist of the subjects mentioned below, weighted as indicated:

| Subjects. | Weights. |
|---|---|
| 1. Letter-writing (medical subject) | 5 |
| 2. Anatomy and physiology | 5 |
| 3. Chemistry, materia medica, and therapeutics | 5 |
| 4. Surgery, general and special | 10 |
| 5. Hygiene and practice of medicine | 15 |
| 6. Pathology and bacteriology | 10 |
| 7. Training and experience, with special reference to tuberculosis and trachoma | 50 |
| Total | 100 |

Applicants must show in their applications that they have had at least three years' experience in medicine since graduation from a reputable medical college, and have had special training and experience in connection with tuberculosis and trachoma.

Applicants who fail to indicate in their applications that they have had sufficient training and experience to entitle them to a rating of 70 per cent in the seventh subject will not be admitted to the examination.

Applicants must accompany their applications with certificates from reputable physicians showing that they are free from tuberculosis in any and every form.

Age limit, twenty years or over on the date of examination.

This examination is open to all citizens of the United States who comply with the requirements.

This announcement contains all information which is communicated to applicants regarding the scope of the examination, the vacancy or vacancies to be filled, and the qualifications required.

Applicants should at once apply either to the United States Civil Service Commission, Washington, D. C., or to the secretary of the board of examiners at any place mentioned in the list printed hereon, for application form 1312. No application will be accepted unless properly executed and filed with the commission at Washington prior to the hour

of closing business on November 13, 1909. In applying for this examination the exact title as given at the head of this announcement should be used in the application.

Army Medical Corps Examinations at Washington, Chicago and San Francisco.—The surgeon-general of the army announces that the war department has appointed permanent boards for the preliminary examination of applicants for appointment in the medical corps of the army to meet at Washington, D. C., Fort Sheridan (near Chicago), Illinois, and San Francisco, California, in addition to the usual preliminary examination boards that are assembled at various army posts throughout the United States from time to time. The permanent boards will hold sessions on the second Monday of each month.

A limited number of successful candidates will be appointed first lieutenants in the medical reserve corps (salary $2,000 per annum) and assigned to army posts until the next session of the Army Medical School, when they will be ordered to attend the school as "student candidates."

Applicants must be citizens of the United States, between twenty-two and thirty years of age, graduates of reputable medical schools, of good moral character and habits, and shall have had a year's hospital training after graduation, or its equivalent.

Full information concerning the examination can be procured upon application to the "Surgeon General, U. S. Army, Washington, D. C."

Census Commission Report.—The preliminary report of the Census Commission relative to the second decennial revision of the classification of the causes of death, made by the International Commission in Paris recently, together with the revised list of titles will be found in Census Bulletin No. 104 which will be published soon and copies will be sent to all of the registration officials of the United States and to the members of the American Statistical Association. A new manual of classification will be prepared for the use of the registration offices of the United States as soon as the detailed results of the revision are available, and an effort will be made to bring the revised classification to the attention of every physician and local registrar in the country as an aid to the proper reporting of causes of death.

If the Census Commission had accomplished absolutely nothing in the way of practical reform, it would have been, according to Census Chief Statistician Wilbur, well worth sending in order that the country should occupy the place to which it is entitled in the councils of the nations which employ this classificaton; but, as a matter of fact, very much was accomplished.

Doctor F. P. Foster, as chairman of the American Medical Associations committee and Doctor Wilmer R. Batt, as chairman of the committee of the American Public Health Association, have been engaged for over a year in co-operation with the bureau of the census and with committees appointed by many national medical organizations devoted to special branches of medicine, upon the question of the proper classification and nomenclature of diseases with special reference to the improvements

to be made in the international classification at the recent revision. Meetings were held by these committees at Philadelphia, New York, and Washington, and important suggestions were formulated which were duly transmitted to the secretary-general, Doctor Bertillon, and were laid before the commission in the special book prepared for its use. A very considerable proportion of these was adopted by the International Commission. Perhaps the most important of all the measures especially recommended by the United States was the improvement in the principle of the statistical classification of deaths from violence. Doctor Bertillon, Doctor Livi of Italy, and Doctor Cressy L. Wilbur were appointed a special committee of the commission to adjust this portion of the classification, which they did.

Dr. Wilbur has stated that he believed the revised list will be much more acceptable to American registrars and that it will give the information in regard to the industrial causes of mortality in a more satisfactory way than any classification previously prepared. Of course all of the recommendations of the American delegates could not be adopted. There were twenty-three countries represented in the International Commission and conservatism is a characteristic of European officials and especially of European statisticians. It is perfectly right, he declared, that this should be so because it creates endless confusion when many changes are made in an established system of compilation. Furthermore it is hardly to be expected that a country like the United States, whose registration officials had never before joined in an international congress and whose statistics relate to only about one-half of the population of the United States should be able to prevail against the established views of the representatives of countries where complete and comprehensive vital statistics have been published for a long series of years. Nevertheless the fullest consideration was given to the American propositions and the utmost courtesy and harmony prevailed. The American delegates owe profound thanks to the secretary-general, Doctor Bertillon, and to the French government, and American registrars should loyally abide by the recommendations adopted and use the international classification without any modifications or changes, except such as are entirely permissible under its constitution, for the next ten years.

Dr. Wilbur stated that the United States starts at the beginning of a new census decade with the revised classification of causes of death, in which American registration officials and American physicians have had their say; a revised standard certificate of death, which will be adopted by the American Public Health Association at Richmond this month, and put into effect for all of the registration area beginning January 1, 1910; and with new rules and instructions recently formulated by the director of the census and promulgated to all reporting offices for the purpose of obtaining more complete and correct transcripts of the deaths now registered.

Mortality Statistics Next Year.—U. S. Census Director, E. Dana Durand, has promulgated new rules and instructions for the purpose of securing more complete and accurate transcripts of deaths occurring in

the selected death registration states and cities of the United States. These transcripts are obtained every month by the census bureau from nearly all of the city and state registrars in the census death registration area and they form the basis of the mortality statistics prepared by the division of vital statistics, under Chief Statistician, Dr. Cressy L. Wilbur.

This action is expected to result in the presentation of the most scientific and trustworthy mortality statistics ever compiled in connection with a decennial U. S. census, which affords the population bases for the 1910 death rates. In addition to this important step toward more reliable data, the new revised version of the classification of the causes of death, as adopted at the Paris conference for the second decennial revision of the international classification, will go into effect January 1st next in the census registration area. Supplementing these will be the use of the new United States standard death certificates which it is believed the organized registration officials forming the vital statistic section of the American Public Health Association will adopt for the report of deaths commencing January 1st next, at the Richmond, Va., meeting, October 19th-22nd next.

In his communication to the state registrars, Director Durand states that in their work of co-operation it is of the greatest importance that there should be exact agreement between the number of deaths as compiled by the state officers and by the census bureau, at least with respect to the total number of deaths reported for each month in each state, county and city. Differences occur at present which are not creditable to American statistics. For the purpose of preventing such differences, a monthly shipment check list, showing the deaths by months and areas, has been prepared and will be supplied to each state registrar.

He asks transcribers to follow absolutely the instructions for copying and advises tests to ascertain correctness. Permanent transcribers are preferred because of the skill acquired. Local registrars should be compelled to make returns on time. No effective registration can exist when the central office permits tardiness. The credit of the state service must suffer, the director states, from heedless and incompetent work, and the compensation paid for the returns is sufficient to entitle the government to thoroughly reliable transcripts, promptly transmitted, and containing all of the statistical data required to be registered under the state law.

To the city registrars the director suggests they note the instructions to state registrars. He states that a city registrar should have in his hands the certificate of every death that occurs, with absolutely no exception, before any disposition is made of the body; hence there should be no occasion for certificates filed many days after the close of each month or year. The corrections should be obtained before the burial or removal permit is issued. No imperfect certificates or unsatisfactory statements of cause of death should be accepted. When overlooked, however, they may be corrected readily by special blank or telephone, and city returns should therefore be superior in quality and completeness.

In conclusion the director states that with the cordial co-operation of state and city registration officials, the value of the mortality statistics of the United States will be greatly improved. It is especially requested

that every effort be made to carry out faithfully the recommendations for the remaining months of the present year, so that the entire returns for the year 1910, which are especially important because of the comparisons possible with the population data of the thirteenth census, may be in complete agreement for all of the states and cities of the United States. Special circulars of instructions will be issued relative to the reporting of occupations and causes of death. It is hoped that the new standard certificate, and the approved instructions, may be adopted by all of the registration states and cities, so that thoroughly comparable returns may be instituted for the decade beginning January 1, 1910.

Dr. Wilbur, who was one of the American delegates at the second decennial revision, stated that the opportunity of starting out with the use of the revised classification for the mortality statistics relating to the actual census year, is of the greatest value. It is highly gratifying that the wishes of the United States for the advancement of the date of the international revision from 1910 to 1909 were acceded to by the French government and the other countries participating.

In accordance with a resolution of the international commission an official version of the revised titles is to be prepared in each language represented. The English translation has been made by Dr. Wilbur, aided by the other American delegates and by Hon. G. W. Knibbs, Commonwealth Statistician of Australia. This will provide precisely the same tabular list for all English-speaking countries that have adopted the international classification.

The active interest of the United States in the promotion of international uniformity was accorded a very graceful recognition in the bestowing of the vice-presidency of the International Commission upon Dr. Wilbur, who was called upon to preside over one of the sessions.

The next revision will be called in 1919 and under the auspices of the French government, unless other provision is made. It is to be hoped, however, in view of the great advancement of American vital statistics and the important part this country has played in the extension of the international classification, that the third decennial revision will be called by he American government to meet at Washington.

Appeal to the Medical Profession of the West and South.—Up to the present time there has not been a concerted effort made to collect and preserve historical data in regard to the origin, evolution and personnel of our profession in this part of our country. The result of this delinquency has been the total loss of much material that should have been preserved, especially pertaining to medical schools and societies, the biographical matter in connection with the practitioners and teachers of medicine of by-gone days. A good deal of material of this character is still obtainable if a systematic effort is made to locate and preserve it. It is in the possession of individuals, families and private libraries and will eventually be lost. *The Western Associaton for the Preservation of Medical Records* was organized in May, 1909, for the purpose of collecting the historical and biographical records of the profession of the West and South. Anything and everything pertaining to Western medicine and

medical men is desired, and the active help and support of every member of the profession who is in sympathy is solicited. There are no fees or obligations of any kind, and arrangements have been made with the Lloyd library, Cincinnati, O., for the proper housing of the material collected. The latter will be systematically arranged, catalogued and properly preserved so that it can be made available for research work. It is particularly desired to obtain:

1. Medical journals published in the West and South prior to 1880;
2. Medical books and pamphlets written or published in the West;
3. Manuscripts and autographs of early physicians;
4. Old diplomas and other documents of a medical character;
5. Proceedings of medical societies;
6. Reports of hospitals and other medical institutions;
7. Catalogues and announcements of Western and Southern medical colleges of all "schools";
8. Biographies and portraits of Western physicians;
9. Information and material of any kind pertaining to medicine and medical men and affairs in the West;
10. Curios of a medico-historical character.

All contributions should be sent in care of the librarian: A. G. Drury, M. D., Librarian, 710 W. Eighth street, Cincinnati, O. C. A. L. Reed, M. D., Chairman; Otto Juettner, M. D., Secretary.

Personals.—Dr. James Fletcher Robinson (A. M. C. '06) will on January 1st become first assistant to Dr. Charles Mayo of Rochester, Minn. Dr. Robinson was recently in the city and many had the pleasure of talking with him.

—Dr. C. R. Kay (A. M. C. '07) is practicing at Gladstone, N. J.

—Dr. John Windgate (A. M. C. '08) has opened an office in Rome, N. Y.

—Dr. C. S. Merrill and Miss Merrill sailed on October 23d, for a comprehensive trip around the world.

Married.—Dr. James Watson White (A. M. C. '05) of Fonda, N. Y., married Miss Margaret McClellan of Gananoque, Ontario, Canada, at the bride's home, Wednesday, September 22, 1909.

—Dr. Miles J. Cornthwaite (A. M. C. '05) and Miss Catherine Schuyler, were married in Watervliet, N. Y., October 1st, 1909.

—Dr. William H. Conger (A. M. C. '08) and Miss Ina Brown were married in Albany, N. Y., the latter part of September, 1909.

—Dr. Charles L. Witbeck (A. M. C. '01) and Mrs. C. E. Witbeck, of Cohoes, N. Y., have returned from a three months' trip abroad.

—Dr. Orla A. Druce (A. M. C. '09) of New Paltz, N. Y., has been appointed physician and surgeon for the Degnon Contracting Company, New York City Board of Water Supply.

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Died.—Dr. Gustavus McFadden (A. M. C. '64) died suddenly in Manitou, Colo., August 19, 1909, from acute gastritis. Aet. 71.

# In Memoriam

RUSSELL CLUTE, M. D.

Dr. Russell Clute died at the home of his sister, Mrs. Samuel McClellan, in the city of Amsterdam, September 24th, 1909, aged thirty-three years. Dr. Clute graduated from the Amsterdam High School in 1898, after which he began the study of medicine in the offices of Dr. H. M. Hicks in that city. In 1899 he entered the Albany Medical college and from that institution graduated in 1903 with high standing and brilliant prospects. He accepted an interneship with Christ's Hospital, Jersey City, in 1904, remaining there a little more than a year, when he took charge of Dr. Bond's sanitarium in Yonkers, N. Y. Desiring to enter general practice for which he was so eminently qualified, he opened an office in Park avenue, Hoboken, N. J., where he soon established a large and profitable clientage. His health during his college life was not of the best; twice during the course of his studies he sought relief by surgical procedures, the first time for an appendix, the second for calculi of a ureter. In 1906 he developed a well marked case of leukemia, and from that time until his death he put up one of the bravest of contests with the grim destroyer. He was engaged to marry Miss Beatrice Evans of Niagara on the Lake, whose devoted interest, affection and self-sacrifice were untiring. His parents and two sisters survive him. H. M. H.

# Current Medical Literature

## REVIEWS AND NOTICES OF BOOKS

*A Text-Book of Operative Surgery.* Covering the Surgical Anatomy and Operative Technic Involved in the Operations of General Surgery. Written for Students and Practitioners. By WARREN STONE BICKHAM, Phar. M., M. D., Visiting Surgeon to Charity and Touro Hospitals, New Orleans. Octavo of 1206 pages, with 854 illustrations, entirely original. Philadelphia and London: W. B. Saunders Company, 1908. Cloth, $6.50 net; Half Morocco, $8.00 net.

This work now appears in its third edition, which is ample proof of its popularity and the fact that it is generally appreciated by the surgical profession. This volume has been decidedly enlarged, both as to subject matter and as to illustrations, containing two hundred and twenty more pages than in the second edition.

The work is divided into two general parts, the first dealing with the operations of general surgery and the second dealing with the operations of special surgery. In general it has been the author's endeavor to describe carefully the essential features of the surgical anatomy involved, following this with a description of the more important operations proposed and practiced for the relief of the various conditions. But little attention is paid to clinical considerations or to post-operative treatment. The illustrations are numerous and well-executed.

Part one is subdivided into thirteen chapters, the first two of which are occupied with a consideration of the operations upon arteries and veins. Chapter three presents the operations upon the lymphatic glands and vessels; chapter four, the operations upon nerves, plexuses and ganglia. Chapter five and six are devoted to the operations upon bones and joints. The following five chapters are necessarily brief and present the operations upon muscles, tendons, tendon-sheaths, ligaments, fasciae, and bursæ.

Of these five chapters that on tendon operations is the most important. Part one closes with a long and satisfactory chapter on amputations and disarticulations and an equally satisfactory one on excisions and osteoplastic resections of bones and joints.

Part two is subdivided into eight chapters—the first dealing with operations on the head; the second with operations upon the spine and spinal cord; the third with operations upon the neck; the fourth with operations upon the thorax; the fifth with operations upon the abdominal pelvic organs; the sixth with operations upon the male genital organs; the seventh with operations upon the female genital organs, and the eighth with operations for hernia.

It is not to be expected that such a volume would present much that is new and original, but the author has carefully culled surgical literature and for the most part has given a concise and accurate description of most important operations as they are performed by the best surgeons of the day. As a text-book for the student and as a book of reference for the operator in surgery, the volume well merits the cordial reception which the previous editions have enjoyed and which will undoubtedly be tendered the present edition. A. W. E.

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*Hand-Book of Diseases of the Rectum.* By Louis J. Hirschman, M. D., Detroit, Michigan, U. S. A., Fellow American Proctologic Society; Lecturer on Rectal Surgery and Clinical Professor of Proctology, Detroit College of Medicine, etc., etc. C. V. Mosby Medical Book and Publishing Co., St. Louis, 1909.

The "Hand-Book of Diseases of the Rectum" by Louis J. Hirschman, M. D., is a volume of three hundred and seventy-four pages with one hundred and forty-seven illustrations, mostly original, including two colored plates.

As the author states in the preface, "Only those conditions which are amenable to treatment in office practice have been discussed and the limitations of office treatment clearly set forth."

The first two chapters are concerned with anatomy and the symptoms of rectal disease. The third chapter on "Examinations of the Patient" is well illustrated by numerous photographs and drawings. The author considers the Sims position the correct position of the patient for rectal examination.

"Constipation and Obstipation" is the title of the fourth chapter, and in subsequent chapters the various diseases of the rectum are considered. In the treatment of fistula in ano the bismuth paste method of Emil T. Beck is highly spoken of. The technic of local anesthesia is fully described and its value pointed out. Local anesthesia is especially useful in the treatment of hemorrhoids. The Whitehead operation is, in the author's opinion, very seldom, if ever, indicated.

The last chapter in the book, "The Feces and Their Clinical Examination," is written by Geo. W. Wagner, M. D., of Detroit, Michigan.

J. MC W. B.

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## LARYNGOLOGY, RHINOLOGY AND OTOLOGY

### Edited by Clement F. Theisen, M. D.

*The Pigmentations of the Mucous Membrane of the Mouth.*

H. G. ANTHONY. *Journal of the American Medical Association, November* 14, 1908.

*Congenital pigmentation.*—The most common form is the soft mole which may be simply a pigmentation of the skin or may present itself as a mammillated nodule with or without pigmentation or hairy growth.

Oppenheim has reported a case of soft mole affecting the conjunctiva of the eye ball and extending even over the cornea, but the writer could find no cases on record in which soft moles were present in the mucous membrane of the mouth. Even in cases in which the cutaneous surface was studded with pigmentary moles, the mucous membrane of the mouth was free. The author has observed one case of such a growth occurring in the mucous membrane of the mouth.

In this case the nodule was situated in the middle line of the roof of the mouth on the hard palate in a woman aged sixty years. There were a few pigmentary moles of the skin also present.

Roy has reported a case of melanosis of the palate which after existing twenty years became sarcomatous.

The pigmentations of xeroderma pigmentosum affect the vermillion border of the lips but they have not been observed in the mouth. The fibroma molluscum tumors of von Recklinghausen's disease, frequently occur in the mouth but the pigmentations affecting the mucous membrane must be quite rare because the only mention of them in recent literature is the report of Oddo, who describes them in two cases as well-defined areas of pigmentation affecting various parts of the mucous membrane and resembling the pigmentations seen in the mouth of dogs.

The pigmentations of the mucous membrane of the mouth in Addison's disease are usually not the same shade of bronze-color as in the skin, but consist of circumscribed areas of melanotic pigmentation. They are rarely absent and are of great diagnostic importance.

Stelwagon emphasizes the fact that pigmentation is frequently a lesion relic in scleroderma. Audry has reported a case of scleremia in which

ill-defined plaques of pigmentations were present in the mucous membrane of the cheeks.

*Phthiriasis.*—Thubierge and a number of others have observed melanotic pigmentations of the mucous membrane of the mouth in cachectic subjects with cutaneous brown pigmentation. The fact that such buccal pigmentations occur only in cachetic subjects suggests the thought that hemochromatosis is the cause of such pigmentations rather than pediculi per se.

Osler states that whenever hemochromatosis, either with or without diabetes, is suspected, the correctness of the diagnosis intra vitam will be made much more probable by removal of portions of the pigmental skin and the finding (by the potassium ferrocyanid test), of iron-containing pigment in the cells of the sweat glands and of the ochre yellow, in the muscle fibres of any blood vessels that may be present, by the use of hemofuchsin.

That pigmentation is actually caused by pediculi is shown by the fact that pediculi pubis cause blue pigmentations of the skin, so that with hemochromatosis excluded, it is extremely probable that pediculi corporis produce brown pigmentations of the skin, and black pigmentation of the mucous membrane of the mouth. In the class of anomalous pigmentations, the author includes all pigmentations of the mucous membrane of the mouth which can not be assigned to any of the preceding disorders.

These pigmentations are almost invariably located in the mucous membrane of the lips. They are usually observed in patients suffering from gastrointestinal autointoxication, diabetes and neurasthenia.

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*The Radical Operation on the Antrum of Highmore from within. (Die Radikaloperation der Kieferhöhle von innen her.)*

RETHI. *Wiener medicinische Wochenschrift, No.* 1, 1909.

The author first described the method of opening the antrum of Highmore through the nose seven years ago.

The important point in this operation is to make a large opening into the antrum through the naso-antral wall. The lower turbinate and the lateral wall of the inferior and middle meatus is first thoroughly cocainized and adrenalin applied, and then the anterior two-thirds of the inferior turbinate removed.

An opening is then made with a chisel behind the anterior end of the turbinate and is enlarged with bone forceps up towards the middle meatus as well as in the inferior, so that a wide communication is made between the antrum of Highmore and the nose.

The diseased mucous membrane and any granulations are then scraped out.

The advantages of this method are as follows: The operation is much simpler than the radical Caldwell-Luc operation through the canine fossa.

It can be performed in a few minutes (four or five) after the cocaine and adrenalin have been applied.

The author emphasizes the necessity for removing enough of the inferior turbinate; taking off simply the anterior third is not sufficient. He also states that it is important to have the opening into the antrum extend to the middle meatus, and not confine it to the inferior.

A small opening closes very rapidly and does not allow sufficient drainage.

Almost all authors give the preference to the Caldwell operation through the canine fossa if conservative methods have not been effective.

The operation through the nose is not followed by the severe pain that often goes with the Caldwell operation.

The criticisms that have been frequently made against the operation through the nose are, that the antral cavity cannot be thoroughly inspected after the operation, and that it is hard to reach with the curettes that is every part of it. This the author states is not a fact, if a large enough opening has been made. Small mirrors can be carried through the nasal opening into the antrum so that it can be inspected.

The author believes in doing the radical operation in the first place in cases of chronic maxillary sinusitis, rather than to try palliative measures, such as a small opening through the inferior meatus.

The operation through the canine fossa does not cure a larger percentage of the cases than the one through the nasal wall.

Chiari states that in some chronic cases treated in this way he did not obtain a cure in a single case, that is, the discharge did not entirely stop.

Out of fifty-eight cases operated on by the writer by his method, forty-nine were cured. That is the discharge of pus has entirely stopped. Nine cases were improved but not cured.

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*The Diagnosis and Treatment of Suppurative Conditions of the Accessory Nasal Sinuses. (Zur Diagnose und Behandlung der Nasennebenhöhleneiterungen.)*

MARTENS. *Deutsche medicinische Wochenschrift, January* 28, 1909.

The experience of the physician in regard to the frequency of diseases of the accessory nasal sinuses, differs very decidedly from the pathological findings at autopsy. At autopsy diseased conditions of the sinuses are found much more frequently than was suspected during life. One reason for this is, that many suppurative processes of the sinuses cause so little suffering that the patient does not seek the advice of a physician. In certain cases also the diagnosis presents many difficulties.

Aids to the diagnosis of affections of the accessory sinuses have increased very much during the past few years. Transillumination and skiagraphy are of the greatest service. Trial punctures of the antrum of

Highmore are made, and the naso-frontal duct is made more patulous so that pus in this region can be more readily detected.

The ethmoid cells offer the greatest difficulties to intra-nasal manipulations. In ethmoid disease, unless pus can be seen coming directly from the cells, repeated examinations may be necessary to make a diagnosis, and if the patient and physician lack the necessary amount of patience many cases of ethmoiditis may be overlooked.

The subjective light reflex and skiagraphs may point to the disease, but after all the surest indication is the presence of pus in the nose.

In cases in which no pus can be found on nasal examination, the suction method which has been advocated by certain authors for years, will draw out even the smallest quantity of pus. This is particularly true in disease of the ethmoid cells.

The writer recommends for this purpose the use of specially constructed pump with a vacuum meter, with which a uniform pressure can be maintained.

He has been able to demonstrate the presence of pus in certain cases in which absolutely none could be found n the nose before the suction pump was used. It is particularly useful in disease of the posterior ethmoid cells and sphenoidal sinus, conditions often presenting great diagnostic difficulties.

It is also of great value in the treatment of suppurative affections of the sinuses. The main object of the treatment in acute cases is to get the pus out of the sinuses, and this the author states can be readily accomplished with the suction pump.

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*The Post-operative Effects of the Stacke Operation.*

James F. McKernon. *Laryngoscope, December,* 1908.

The author states that there are a number of points that should be considered by otologists, when they are consulted by a patient, for the best methods of curing a running ear that has persisted for a long time.

First of all, is it necessary that a radical operation should be performed? If dead bone is present in the tympanic cavity, the answer is in the affirmative, but there are many cases when the patient is advised to have this operation performed on account of a discharge from the middle ear, which has existed only a few weeks or months, and when no dead bone can be found. In this class of cases the author believes that it is a very unwise procedure.

In considering the post-operative effects, the question of the percentage of recurrences is an important one. The author believes that fully one-quarter of the cases operated upon lapse into the recurrent class. The cause of such recurrences is not always failure to remove all the dead bone (though this is often the case), but many of them are the result

of faulty technique in dressing after they have been discharged from the hospital wards.

Failure to remove all diseased tissue at the tympanic orifices of the eustachian tube, is also the cause of a certain number of recurrences. But a still further cause acting by way of the eustachian tube, must be considered, and that is, that many of these patients contract colds easily, the tubes become infected, and this extends to a mass of new scar tissue lying over the tube, with the result that it becomes broken down and a direct communication is again established between the tympanic cavity and the pharynx. The cause for such an extension in a large number of cases, is due to the mechanical obstruction in the naso-pharynx by a mass of lymphoid tissue. The effect of the operation upon audition is of the greatest importance to the patient, and the author believes that this point is not discussed as frankly with the patient about to have this operation as it should be. The author has only seen one case where the hearing was improved and remained so after this operation. He does not believe in the majority of the cases that an improved permanent audition is ever the result of the operation.

*Tinnitus.*—In a certain number of cases operated upon. the tinnitus is improved temporarily but after a mass of scar tissue has re-formed it again becomes troublesome, but not as a rule to such an extent as before.

*Vertigo.*—That which has been caused by pressure and not by labyrinthine disease is always relieved, and even though the patient exhibits marked vertigo prior to operation, the labyrinth should not be molested, unless a necrotic process is found invading it.

*Facial paralysis.*—This occurs in a number of cases operated upon, but as a rule it is transient. Should the nerve fail to perform its usual will hasten resolution.

In advising this operation for our patients a most important question function at the end of a month the use of an interrupted galvanic current should be considered, that of mortality, and it is impossible to gather statistics upon this point, for operators are prone to report successes and not failures.

That deaths following this operation do occur, all otologists know, and everyone performing a considerable number of these operations could report if he would a certain percentage of deaths. The author has had two cases of meningitis, and two of thrombosis of the sigmoid, bulb and vein, following he believes as the direct result of this operation and all were fatal. He has also seen ten cases of meningitis, in consultation, following the operation, all of which were fatal, and six cases of sinus involvement and two of brain abscess of the acute variety. Three of the six sinus cases recovered after evacuation of the sinus and resection of the vein, one of the abscess cases recovered the other died.

The author believes therefore that a little more guarded prognosis should be given in discussing this operation with the patients or their families.

## MATERIA MEDICA AND THERAPEUTICS

Edited by Spencer L. Dawes, M. D.

*Review on Venereal Diseases.*

J. Ernest Lane. *The Practitioner, October,* 1908.

In the treatment of syphilis, Hallopeau daily injects ten centigrammes of atoxyl between the chancre and its satellite glands, with the object of destroying the treponema (spirochætes), which are in a state of activity. Of three patients so treated, two had a respite from secondary symptoms of from four to six months, with ultimately manifestations of the most mild and most transitory nature, while a third had been exempt for a year. Renault reports five cases in which he followed out the same technique, in all of which the modification of the symptoms was so slight that he considers atoxyl quite insufficient for the cure of syphilis, and he believes it chiefly of value as a tonic, not as a substitute for mercury. Hallopeau ascribes the indifferent success of Renault and others to be due to insufficiency of the dosage, and advocates two injections of fifty centigrammes each forty-eight hours, repeating the procedure every ten days.

Gaucher describes a case of syphilis treated for a year with atoxyl without any good effects, and in which the symptoms included roseola, papular syphilides and severe headache. He received fifty injections, many of which were followed by colic and vomiting. In the end his general symptoms became so grave that he was treated by injections of benzoate of mercury with the happiest results.

Recent experiences confirm our earlier opinions in regard to arsenic in syphilis, that is that it is of value only as an adjunct to mercury.

Boyreau reports eighty cases of syphilis treated after the manner of Audrey, by means of rectal injections of grey oil, in the dosage of three centigrammes for an adult and one centigramme for a child. He states that there is rapid absorption as manifested by the speedy modification of the clinical signs, as well as their ultimate disappearance. In each case the improvement was remarkable, commencing on the fourth to the sixth day of treatment. This method has the advantage of being practical, painless, and of occasioning but little irritation to the rectal mucous membrane. One case is spoken of in which a child had two hundred of these suppositories without showing any signs of intolerance, either general or local. Proctitis was rare and tenesmus and pain on defæcation appeared in a few cases but promptly disappeared on a short interruption of the treatment. The advantages of this method of treatment are; that it does not interfere with digestion; it is easily and expeditiously carried out; gives rise to no pain as does intramuscular injections; is not dirty and repulsive as is inunction; mercurialism is rare; the stomatitis so common in the injection and inunction treatment does not occur; diarrhea is rare and easily controlled; it is especially adaptable to young children. It is not to be commended in old subjects, in the intemperate, or where the disease might be expected to take on a severe or malignant

phase, nor should it be prescribed where there is any rectal disorder, such as ulceration, fissure or hemorrhoids.

Notwithstanding the good results obtained by Metchnikoff, in the prophylaxis of syphilis by the application of strong mercurial ointments, both Butte and Carle criticise it severely and believe that it is not a method upon which absolute reliance can be placed. Carle believes that the application of Marseilles soap has probably saved more people from syphilis than calomel has ever done, or will do in the future.

Civatte has instituted an inquiry of syphilographers of all nationalities as to the time when syphilitic subjects should be permitted to marry. Among these may be mentioned. Finger, Jadassohn, Unna, Hutchinson, Nevins, Hyde, Gaucher, and Thibierge. Of all consulted, all with the exception of Mibelli of Parma believed that marriage should be permitted under certain conditions, and with certain restrictions. All agreed that the patient should have taken mercury for a long time, that signs of mercurialism should have appeared, and no symptoms of the disease should have been seen for a long time. Fournier and others thought that there should have been four years of intermittent treatment with two years of absence of symptoms, while the lowest time given by any authority was two years from the inception of the disease. Hernheimer of Frankfurt believed that ten years should have elapsed and pointed out the great importance attached in Germany to the total disappearance of glandular enlargement. Almost all compel the matrimonial candidate to undergo a last course of treatment. To conclude, time and mercury, which are nevertheless not always sufficient, are the two great elements which allow us to judge the difficult and delicate question as to the marriage of a syphilitic.

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*The Treatment of Syphilis.*

David Sommerville. *Folia Therapeutica, January,* 1908.
Martin Friedlander. *Folia Therapeutica, July,* 1908.
W. Wechselmann. *Folia Therapeutica, October,* 1908.

Inasmuch as the treatment of syphilis in this country seems to be rapidly tending toward the use of mercury hypodermatically rather than by inunction or by the mouth, it is interesting to consider in one abstract three articles upon the treatment of that disease, written by three different authorities upon the subject; Sommerville, Physician of the London Skin Hospital; Friedlander, Director of Lassar's Clinic, Berlin; and Medical Councillor Wechselmann of the Rudolph Virchow Hospital, Berlin.

Sommerville says that while all admit that the main principle of antisyphilitic treatment is the incorporation of as much mercury as possible, in exact quantities, avoiding injury to the body, yet training and prejudice, rather than a knowledge of physiology or pharmacology, frequently lead to selection of an individual method. He believes that the irritation to the skin, the soiling of the body linen, the fact that it can not be concealed

from others, and the consequent depression to the patient's spirits, as well as the derangement of his habits contraindicates the inunction method excepting in those urgent cases where mercury by the mouth is not well borne or has no effect.

As to subcutaneous injections of mercury, he forcibly pictures the disadvantages, the painful indurations, the abscesses, the danger of sudden poisoning, and the size of the dose, and states that this method is in no way superior to inunction and the only advantage which it possesses over administration by the mouth is the accuracy of dosage.

His own method is by the mouth in periods of six weeks high dosage, up to tolerance, followed by three months low dosage, this alternation being maintained for at least two years. During the latter part of the second year he sometimes adds potassium iodide by the mouth. He is now using mergal (mercuric cholate) with very satisfactory results, finding that it is better tolerated by the digestive and other organs than the other mercury salts, which he believes to be due to the fact that the mercury is combined with cholic acid, a product of the liver cells.

At Lassar's clinic, according to Friedlander, in all questionable cases, the diagnosis is made certain, either by means of the microscope or the use of the Wasserman reaction. He believes that some cases are better treated hypodermatically, some by inunction, and others still, by the mouth. He finds that different salts of mercury suit different cases, and he too speaks highly of mergal, saying: "* * * It is well borne, has proved itself powerfully active against syphilis, although the inunction and injection methods remain the routine practice. This organic mercury preparation, mergal, has the advantage over the other and inorganic mercury preparations that it is easily assimilable, and in no way irritates the alimentary canal. Patients can remain longer under this method of treatment quite comfortably, and do not suffer from the disagreeable inconveniences attending other methods, and this, in the case of better class patients, is a matter of highest importance." He states that when the iodides are indicated, if potassium iodide is not tolerated, he uses the effervescing preparations of iodine, and in the grave affections of the brain and spinal cord, twenty-five per cent. injections of iodipin solution directly into the muscles.

Wechselmann's routine is as follows: A six weeks inunction treatment of from three to five grams ung. hydrarg. or in mild cases, thirty inunctions. Where the condition of the skin will not allow of this method, injections of the insoluble mercury salts are used, by preference, mercury salicylate or thymolacet in one decigram doses. The soluble salts and the internal administration of mercury salts are suitable only for the mildest cases. For internal administration he says that mergal is quite efficient in the mild cases, is highly spoken of by many authorities, and has as a distinct advantage, its non-irritating effect on the alimentary canal. While these methods will do in the majority of cases, the sovereign remedy in the malignant cases is from six to eight injections of calomel in one decigram doses. In the later stages iodipin is desirable in doses of from ten to twenty grams of a twenty-five per cent. solution, repeated for several days, injected warm under the skin of the back or buttocks.

*An Account of the Theory and Employment of Bier's Method of Treatment by Passive Congestion in Cases of Rheumatoid Arthritis, Tubercle, Sepsis, and Various Other Conditions.*

A. W. Wakefield. *The Practitioner, October,* 1908, p. 566, *November,* 1908, p. 654, *and December,* 1908, p. 846.

In this article of more than usual merit, the author gives a history of the treatment by congestion, the actions of, and theories concerning congestion, and methods of producing congestion, including in the latter some modifications of Bier's methods instituted by himself and others.

The first two topics are too familiar to us to need consderation here, but the third is worthy of a much more lengthy review than we are able to give it:

*The Production of Congestion by Bandaging.*—In ordinary cases the only articles necessary are a light rubber bandage at least two inches in width, and some wool or other padding. Several turns of this bandage are superimposed around the limb proximal to the part to be congested, just tightly enough to compress the veins, while the arteries are not at all, or only slightly affected. Bier claims that by this method, the deeper parts, even the bone-marrow, are congested. By altering the pressure any degree of congestion may be obtained, but in most cases, and especially when treating elderly or wasted individuals, plenty of wadding should be used underneath to distribute the pressure. Great care should be used to have plenty of padding when bandaging above the knee or shoulder, and the site of the bandage should be frequently changed. In this relation it might be noted that the bandage is not of necesssity applied directly above the affected area, but may be placed some distance above. The writer especially emphasizes the very important point that if, despite these precautions, the patient should complain of discomfort due to pressure of the bandage, it should at once be loosened and the periods of congestion be curtailed. Bandaging the affected part from the distal point upward with the idea of intensifying the congestion is not approved of. Bier's well known method of treating the shoulder joint by means of rubber tubing, as well as by another method where a figure of eight or a spica bandage are next described, and then the collodion and the rubber band method in the case of digits.

Congestive treatment should not be undertaken haphazard, but an accurate diagnosis made and the technique varied accordingly and the following general rules are suggested:

1. The bandage should never cause pain or paresthesia. It should, in fact, cause no sort of discomfort, and the patient should be almost unconscious of its presence. A few patients will complain of slight pain for a short time after the bandage has been put on. This soon passes off if the compression is right. Should the bandage be causing pain or paresthesia at the end of an hour, it should be loosened or removed, but in any case no harm can be done in that time.

2. Edema usually occurs. This does not contra-indicate further treatment, but it should be allowed to subside during the intervals between

the periods of congestion. This absorption may be accelerated by raising the part.

3. It is a favorable sign when the skin temperature of the congested part is raised by the congestion. This is easy to accomplish in some cases, especially those due to sepsis and gonorrhea; it is harder to effect in caes of rheumatoid arthritis and tubercle. At any rate the skin temperature should not be decreased. In cases where the part becomes white, shining and cold, Bier says it is due either to too tight a bandage or an unsuitable case. An occasional ecchymosis from the congested part is not harmful.

The production of congestion by means of the suction apparatus is then described as well as Bier's apparatus and various simplifications of the same introduced by Wakefield and others.

As to objections to the use of congestion, Wakefield says: "As with innovations of all sorts so with the introduction of treatment by congestion. Many of the old school doubt its efficacy, and enumerate theoretical objections to its employment." The most frequent objection is the alleged painfulness. If properly employed pain is allayed, not produced, and pain or paresthesia means too tight a bandage or an ignorant operator. The most serious allegation is that pressure sores and gangrene are produced. Since the the employment of a broad, soft bandage there has never been any trouble in this way, except with the grossest ignorance of the technique, in which circumstances, all remedies are dangerous. Wakefield names some additional objections—with varicose veins he has observed pain and an increase in the size of the veins. In a case of rheumatoid arthritis with psoriasis, the latter rapidly spread on the congested limb. In neurotic individuals there is sometimes complaint of the "irritation of the bandage." Several patients have attempted to describe to him, "a curious 'sensation' which they experienced a short time after congestion had been produced. This 'sensation' lasts but a short time, but while it is present the patient feels obliged to sit down, and feels unable to work or read." This quickly passes off and the patient is able to go about as before. He is unable to ascribe a cause for this and believes it unimportant.

In rheumatoid arthritis congestion should be produced by means of the bandage, and may be maintained for any length of time up to twenty-two hours out of the twenty-four. In twenty cases which were closely watched and many which could not be observed so closely, the majority being of a severe type, only two failed to be benefited. One was a case seen but three times and the other was of forty years standing with all the joints ankylosed. The results varied in different cases: In some there was but a temporary relief from pain, while in others the pain disappeared in about an hour and the patient improved for weeks. In some there were recurrences; occasionally the stiffness decreased while the swelling was rarely benefited. A close personal supervision is necessary if the best results are to be obtained as experience will teach every operator. When one joint only is treated there is frequently a marked simultaneous improvement in all the other affected joints. Several cases illustrative are then cited.

In the case of tubercle, Bier now directs that the bandage shall never be applied in active cases for more than two hours daily, preferring one hour.

Unskillful congestion in cases of tubercle may do much damage; this is generally due to too great, too lengthy, or too frequent congestion. Some patients think that if congestion is good, more congestion is better. Bier holds that one hour's congestion, even if excessive can do no harm and that an occasional cold abscess is not a contra-indication to the continuance of congestion. The earlier treatment of tubercle by congestion did not give good results, but since has reduced the periods of congestion and his results have been even brilliant. The following table shows the percentage of cures for each joint:

| | |
|---|---|
| Hand and wrist | 68. per cent. cured. |
| Elbow | 72.7 per cent. cured. |
| Foot | 61.5 per cent. cured. |
| Knee | 23. per cent. cured. |

Immobilisation should be avoided as it tends to produce ankylosis. Many authorities are then quoted and case histories given, followed by these contra-indications to congestion in tubercle:

1. Commencing amyloid disease, and advanced phthisis.
2. Large abscesses, filling the whole joint cavity, and demanding operation.
3. Faulty position of the joint, such that cure would give a result less useful than that obtained by resection.

Acute sepsis is one of the conditions most easily benefited by this treatment. In the limbs, sepsis of any description may be treated by bandage, and boils, carbuncles and similar conditions may be treated by small glass balls. The rules are that pain must never be caused, but rather alleviated. The part should be continuously congested for from eighteen to twenty-two hours daily. During the interval the part should be kept elevated. There is generally a little edema left, but this is no contra-indication to a renewal of the congestion. As a rule the temperature soon falls, the toxaemia is diminished and pain alleviated. Any collection of pus is of course to be at once evacuated.

Wakefield speaks highly of congestion in matitis of any kind, in gonorrheal arthritis, and in chronic gout.

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*Some Experiments in the Treatment and Prevention of Infection in Enteric Fever.*

A. Knyvett Gorden. *The Practitioner, August*, 1908.

The well known tendency of typhoid fever to vary in type makes it essential that any observations on this disease, to be of value, should be based, as they so frequently are not, on a large number of cases. Ex-

periments with drugs have been directed in the main toward the so-called intestinal antiseptics, in the hope of finding some chemical preparation which would kill the bacteria *in situ,* or modify their power of toxin formation. For this to be even theoretically possible, there are certain essentials. The drug must be capable of killing the B. typhosus in vitro within a reasonable time in a dilution which can be safely given to a patient; it must either reach the site of the toxin formation, or neutralize the toxins in circulation; and must give rise to no deleterious effects. It is not even pretended that any chemical will neutralize the circulating toxins, and it can only in theory prevent their formation by killing the organisms. It has been found impossible to prepare a true anti-toxin, so we are driven to the class of true germicides.

Many drugs will kill the B. typhosus in vitro, but most of these can not be administered without poisoning the host. We must then use a non-toxic germicide. This must reach the part of the body where the bacteria are present. If the anti-septic be soluble in the fluids of the digestive tract, the chances are that it will be absorbed before it reaches the intestinal ulcers, while if insoluble, we find in practice that it is usually passed unchanged, per rectum. It is difficult to see how any germicidal effect can be produced by an insoluble germicide, and in addition, such chemicals are irritating to the intestinal tract. Coating a drug with keratin is highly dangerous in such a disease as enteric fever, where the intestine is inflamed and ulcerated, and in practice these keratin coated capsules do not dissolve in the intestine at all. We may then conclude that it is impossible to give any chemical which will be capable of reaching ulcerated surfaces in the intestine, and at the same time be adequately germicidal. Consequently, those who have much to do with this disease are convinced that drugs are useless except for the relief of certain well-marked symptoms. If, however we take a group of five or six cases, a case can be made out for the beneficial effect of almost any drug. It is on diet that we are inclined to rely chiefly in dealing with enteric fever, and the improvements which have resulted, not only in mortality, but also in the convalescence and freedom from complications, since it has been the custom to give solid food in the acute stage, have been most marked. The writer did not become sceptical as to the value of intestinal antiseptics without personal experience, as he claims to have tried almost every intestinal antiseptic that has been recommended by anyone having authority. He then discusses the effect, or rather the lack of effect of the various recommended intestinal antiseptics, and then points out that it is not desirable to concentrate our attention too closely on the site of the ulcers in typhoid fever because the bacilli are found in much greater numbers in other parts of the intestines, in the circulating blood, and in the urine, and that, if we are to attempt to destroy them, we must attack them in the circulating blood, or in the higher regions of the intestines, and that we can control our results to a certain extent by observing whether or no the urine ceases to contain organisms of the coli-typhoid group as the case progresses, the natural tendency being in cases not treated by any antiseptic, for these bacilli to be found in the urine more frequently as the patient progresses toward convalescence. It is then

essential to select a drug that shall be highly bactericidal to B. typhosus, easily absorbable, non-toxic, and is not chemically changed by the presence of organic material in excess.

The writer has made a series of tests with a preparation called Medical Izal Oil, of which he says: "I need not describe its constitution here, but I would point out that it is the basis from which commercial Izal fluid is prepared, but purified and deprived of some of its hydrocarbon constituents. I should add that the oil is only supplied on physicians' prescriptions or to medical men. [The National Dispensatory states that Izal belongs to the same class of compounds as Creolinum. This (Creolinum) is a disinfectant and antiseptic soluble preparation of cresols (quite free from carbolic acid), rendered soluble by means of soap or by sulphonation with sulphuric acid. Ed].

Delepine, Klein, Kenwood, Hewlett, Blyth, and others have showed that the ordinary Izal fluid is an exceptionally powerful germicide for bacilli of the coli-typhoid group, Klein having found that a 1:500 solution completely disinfected typhoid stools in fifteen minutes, and a 1:600 solution rendered typhoid urine asceptic in five minutes. The medical Izal which contains only forty per cent. of the oil has a carbolic coefficient of eighteen and is non-toxic. It can be administered in doses of thirteen minims daily, in capsules without discomfort. While being administered the number of intestinal organisms in the feces is largely diminished and their number rises at once again if it be discontinued. This last, however, is of minor importance, the value of Gorden's researches being in that they show that the Izal can be given by the mouth and that it is absorbed into the circulation. Tunnicliffe has demonstrated that it is intensely poisonous to the lower forms of animal and vegetable life, and that as the scale ascends its toxicity diminishes. He also found that it is a decided diurectic and diaphoretic. In order that it may be readily digested it is administered in combination with either artificial gastric or pancreatic juice or fresh bile, the Izal being in the form of an emulsion with mucilage or tragacanth. As a routine measure, Gorden gives two ounces of the emulsion every two hours during the day, and every four hours during the night, each dose being followed by a draught of water. In only exceptional cases is it hard to establish tolerance.

The experiments were conducted with the greatest care, none of the mild cases or those in which the acute stage had passed, or those obviously moribund at the time of admission being included. No change was made as to diet or nursing, and the only drugs given were alcohol, opium and hypnotics, and these only for the relief of special symptoms.

It is impossible to go into detail in this abstract much to the writer's regret, but a summary is most instructive and suggests a perusal of the original article.

In fifty cases of undoubted enteric fever in which the Izal oil was administered, the urine ceased to contain the B. typhosus in from three to fourteen days; no deleterious effects resulted from the drug, there being but three cases in which nausea or vomiting occurred; there was no disturbance of the appetite; quantity taken in twenty-four hours was fifty-four minims, this dose being continued from one to eleven weeks; in

almost every case, diaphoresis was marked and in each case the increase in urine was very great; the mouth was almost entirely free from sordes; peristalsis was greatly diminished and diarrhea, if present disappeared; delirium when present was quickly overcome; the temperature was affected but little, if any; that the Izal sterilizes the urine by killing the B. typhosus in the blood is evidenced by the fact that it is not excreted by the kidneys, the urine contains none of the drug, and quickly decomposes on standing, while if the Izal be added to it outside the body it completely preserves it; its value lies in the fact that it is a general, rather than an intestinal or urinary antiseptic; case mortality is greatly diminished, the disease is prone to run a more favorable course, and these beneficial results have occurred, notwithstanding the fact that the administration of the drug was not begun, as a rule, until the end of the second week of the attack, and in a series of cases from which all the mild cases were eliminated. It would appear therefore that medical Izal Oil is of considerable value in the treatment of the patient, and in the prevention of infection of his environment.

## PEDIATRICS

### Edited by Henry L. K. Shaw, M. D.

*Recent Advances in Our Knowledge of the Digestion in Infancy. (Neuere Forschungen über die Verdauungsphysiologie des Säuglingsalters.)*

IBRAHAM. *Jahrbuch für Kinderheilkunde, November,* 1908.

The author's investigations were in regard to the ferments present in the digestive tract of infants during earliest infancy and in fetal life. For this purpose he studied twelve new-born infants and twenty-two premature infants. He also made a careful study of the literature bearing on this subject

He finds that trypsin is found in the pancreas of the fetus in the form of trypsinogen and is rendered more active by enterokinase. Enterokinase can be extracted from the intestinal mucous membrane in new-born infants. Secretin is found in both intra and extra uterine life. The amylolytic ferment is found in the parotid and submaxillary glands and in the pancreas of the new-born and in premature infants. In fetal life the ferment appears much earlier in the parotid gland than in the submaxillary or parotid.

Maltase, lactase and invertin are all absent in the saliva and gastric secretions. Maltase is found in the pancreas of the new born. It is also found in the intestinal secretion in the embryo. On the other hand lactase is not found until after birth. This may account for the fact that malt sugar is more easily assimilated in early infancy than milk sugar. Invertin is one of the first ferments that can be detected in the human embryo. No fat splitting ferment could be obtained from the intestinal mucous membrane. Lipase, however, was found in the stomach contents and gastric mucous membrane of both new-born and premature infants.

These digestive ferments could be obtained from the meconium.

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## Original Communications

# THE EXAGGERATED FEAR OF THE HOSPITAL AND OPERATIONS.

*The Vice-President's address, delivered before the Medical Society of the County of Albany at the Semi-Annual Meeting, October 13, 1909.*

By A. H. TRAVER, M. D.

The reason for my writing a paper on this subject is because of the great fear that so many people have of the hospital and surgical operations in general. This fear seems especially marked among people living in the country at some distance from a hospital.

The question naturally arises, is this fear a reasonable one or does it arise from the fact that when a patient from any of the small villages goes to a hospital it is the "talk of the town." Should that patient die while in the hospital everyone in the village knows about it and talks about it much more than they would had he died in his own home. "He died in the hospital." The question does not occur to them, did he undergo an operation, or did he die of some condition that had already progressed so far that no operation could be performed? The fact to them is, "He was taken to the hospital and died there and I am not going there to die." The same thought is many times expressed as follows, "They took him to the hospital and operated on him and that killed him." Of course it is considered that the operation was the direct cause of death, even in the case of an inoperable carcinoma in which an exploratory was done without perceptible effect on the patient's strength, and it was the original disease that eventually caused the death.

This is an argument against doing ever so slight an operation on a hopeless case. If the patient dies, other people hear of it and fear a necessary operation, no matter how simple it may be, or how free from danger. In the minds of the public, all operations are serious and most patients are supposed to die who undergo them.

The history of the following case well illustrates the above statement. A young married woman came to me for examination who had a small adenoma of the breast. I endeavored to explain to her that it was not a serious condition and that it could be easily removed under cocaine and that she could attend to her daily duties just as if no operation had been performed. She said she would have it attended to in a few days. I heard no more of the case for several months. Then her husband reported that "because of her fear of the knife, she had consulted a cancer specialist. He had informed her that her case was serious, it was a cancer, but she need not undergo an operation as he could easily remove it with his special cancer paste." She had the application made; the growth was removed and the entire breast as well, and she was confined to her house for three months. Her fear of a little operation that could have been easily performed under cocaine in five minutes caused her to undergo three months of suffering and the loss of entire breast. To the best of my knowledge that "quack" is still applying his cancer paste to all foolish patients that go to see him. I say all patients, for did you ever hear of any person who went to one of those "cancer specialists" whom he did not tell that she had a cancer? What a great good the anti-vivisectionists could do if they would spend their energy and money in the good cause of prosecuting quacks and fakers instead of endeavoring to get troublesome and needless bills passed by the legislature.

Among city people, or people who are frequently about the hospital, there is much less fear of an operation. They see the 99 cases that regain their health as well as hear of the one that died.

Is the time ever coming when the public will know that it is seldom the operation of itself that causes death. The cause of most cases of death is the fact that the disease has been allowed to progress too far before they will consent to an operation. Had the operation not been delayed because of needless fear until the patient or his friends could see that the patient would surely die unless operated upon, then operations could be performed with a much lower mortality and with much better prospects of the patient regaining perfect health.

I shall make no endeavor to make this a classical paper or burden you with long statistical tables, but simply make a brief statement of the conditions as I have met them. For statistics, I

will take the report of the surgical department of the Albany Hospital for the year 1908, together with the last 350 consecutive cases of my own.

During the year 1908 there were treated in the surgical department of the Albany Hospital 1127 cases, with a mortality of 57 cases, or a death rate of about 5%. At first thought, this might seem a rather high mortality rate, but most of the operations performed in the hospital are major operations, the smaller operations being performed outside of a hospital. Again in case of accidents, only the serious cases are sent to the hospital, the slight cases are treated at home.

This statement is made very evident by the examination of the hospital report. Of the 180 accident cases admitted there were 13 deaths. Several of these deaths resulted directly as result of the accident and cannot possibly be attributed to operation, for none was performed. For instance, three cases of death resulted from burns, three from crushing accidents, one from shock (cause not stated), five from multiple fractures.

It is of interest to note that some of the more common causes of death:

180 cases of accident resulted in 13 deaths.

112 cases of carcinoma resulted in 22 deaths.

8 cases of sarcoma resulted in 2 deaths.

73 cases of hernia resulted in 3 deaths (all three were strangulated).

87 cases of tuberculosis (surgical), 2 deaths (both were tuberculosis of the spine).

261 cases of appendicitis resulted in 8 deaths.

In appendicitis, this is surely a much better showing than 5 years ago, not so much because of the improved technique in operation, although the Fowler position, Ochsner rectal feeding, and the Murphy rectal injection, have been great aid; but more than either of these is the fact that the people in general have learned that appendicitis is a surgical disease and do not fear and delay being operated upon as they did a few years ago. If the public could also learn that tumors of every kind are surgical diseases, and most cases can be permanently cured if operated on sufficiently early, then we would not have had the high death rate in malignant growths, 120 cases with 24 deaths. Doubtless many of the cases that left the hospital had allowed the condition to go

so long before entering the hospital that the operation at best could offer only a temporary relief. To me it is peculiar, yet sad, fact, that many women through a sense of false modesty, will let a tumor in some part of her body grow for a year or more before telling her friends or family physician and so destroy her only chance of recovery.

One word more while on the subject of malignant growths. Are the patients always the only ones at fault? Did any of the physicians present ever make a statement like this?—"Mrs.——— came to me about six months ago for examination of a small tumor in her breast. I have been watching the case and endeavoring to decide whether or not it was cancer. I have come to the decision that it is carcinoma and have referred her to you for operation." The surgeon examines the case and believes it to be carcinoma, but he finds marked glandular involvement. Or, in other words, while the family physician has been studying the case in an honest endeavor to decide whether or not it was malignant, the favorable time for operation has passed. The general practitioners will kindly consider this as a friendly statement and not think that I am endeavoring to make them think that surgeons never make mistakes, for we do make lots of them. But if we take out a breast thinking it to be carcinoma and the laboratory reports it adenoma, we have not done the patient great harm; but if you delay sending us a patient thinking it adenoma when it was carcinoma, you have done the patient great and lasting injury.

So much is heard about operations nowadays that occasionally patients are anxious to undergo operations. These patients are sometimes (far too often) operated upon even when there is no clear indication for so doing. But instead of being relieved by the operation, they return for a second or third operation till finally they find out that they are not benefited by the operations. They now return to their homes and by their great complaining lead people to the conclusion that operations do but little good anyway. In this class of cases it is much better not to operate but in case an incision is made it is much better to close up the incision, admitting a mistaken diagnosis, than to do a needless operation, as a gastro-enterostomy or an ovariotomy where there is no good reason for doing the same. In this class of neurasthenic patients the surgeon has the happy alternative of getting rid of them by stating, "I

find no condition demanding operation. You had better return to your physician for further treatment."

I will now make a brief review of my last 350 consecutive surgical cases. This is not a large number of cases, but for the purpose of this paper, I think it just as instructive as to review a larger number of cases.

I have selected a few of the most frequent kind of cases in the same manner as I did from the hospital report. There were

7 cases tubercular cervical adenitis, no deaths.

50 cases appendicitis, no deaths.

28 hernia, 2 deaths (both strangulated).

2 cases peritonitis, cause unknown, 2 deaths.

8 cases ovarian cyst, no death.

11 cases pelvic inflammatory disease, no deaths.

7 cases carcinoma, no deaths.

3 cases sarcoma, 1 death.

31 cases injury of various kinds, 1 death.

I will close by giving a brief history of the cases that died, five in number.

Case I.—Sarcoma of both ovaries. Mrs. M. S., 32 years old. Family and previous history unimportant. Last menstruation four months ago. About two months ago a surgeon examined her and told her that she had a uterine tumor and advised operation, but as there was some possibility of her being pregnant she decided to wait developments. On the day that I first saw her she was complaining of severe abdominal pain, and said she had not passed urine in 12 hours. Examination showed a very nervous, weak patient with a large abdomen. Palpation showed the uterus enlarged and believed to contain a fetus. On either side of the uterus was felt a mass thought to be enlarged ovaries. Soon after examination she passed a large amount of urine and reported that she was free from pain. I did not hear from her again for six weeks. She then reported that she had been having a great deal of abdominal pain, and could eat but very little. For the past 10 days she had been so weak that she had stayed in bed. Examination at this time revealed the uterus and tumors still larger than at previous examination. After explaining to her that she could not hope to go through her pregnancy, and that she would not live much longer unless something was done, she finally consented to have an operation.

The uterus contained about a 6 months fetus. Either ovary was about the size of the closed fist. The uterus and ovaries were removed. On examination the ovaries were found to be sarcomatous. She stood the operation well for one in her weakened condition, but as soon as she came out of ether our troubles began. She asked for morphine constantly and when we did not give it to her she would yell. In fact, she informed us

that she would keep everyone in the hospital awake if we did not give her the morphine. On the ninth day she succeeded in tearing open the entire incision although same had been closed with layer sutures using chromic cat-gut for the fascia. Even now she kept throwing herself about in bed saying that she did not want to live. After having the greater part of her intestines out of the incision for about five hours she consented to have us put them back and close up the incision. Although the intestines had been out for nearly five hours and she had gotten the dressing off several times, yet the wound healed nicely. She kept on in the same way crying for morphine and refusing to eat till on the 20th day following the operation she died. Had she shown any desire to do as we wanted her to, I think she would have had a fair chance of recovery.

I have reported this case rather fully, as it shows how a disagreeable patient can greatly lessen her chances of recovery. I might say that she was not crazy as her husband and friend said she had always been of the same stubborn disposition.

Case II.—Case of peritonitis. Miss T. Colored. Age 28 years old. No previous history except that she had a baby two years ago, followed by no complications. Otherwise her menstruation has always been regular. Says she has never had any venereal disease. Present trouble: Five days ago she was taken with abdominal pain and vomiting. She states that the day before entering the hospital the vomitus was dark colored. On admission to hospital her temperature was 99, her pulse was 80, the abdomen was not distended, but there was a slight tenderness all over the abdomen. Vaginal examination was negative. During the first 24 hours she was in the hospital the temperature, pulse, and abdomen stayed the same. Her bowels moved freely and she did not vomit. On the morning of the second day she vomited a large amount of dark fluid with a distinct faecal odor. After washing out her stomach she said she felt good and if we would only give her something to eat she would be all right. Her temperature was 99, pulse 90. Abdomen was not distended but there was a slight general tenderness. Operations showed a marked peritonitis; there was about 6 ounces of pus in the pelvis, the intestines showed many adhesions that were easily broken. Free drainage was introduced and the incision closed as soon as possible. Although she was under ether only 20 minutes she stood the operation badly and died 5 hours later. No cause was found for the peritonitis as the appendix, tubes, gall bladder were normal except for the general peritoneal involvement. While no cultures were taken I was suspicious of a gonorrheal infection. This case demonstrates that a patient can have a severe peritoneal infection yet have but few symptoms.

Case III.—Strangulated umbilical hernia. Mrs. W. Age, 56. Patient weighs 287. Has had a large umbilical hernia for about 20 years. This was never reducible yet caused but little trouble until about four months ago. Since then it has been sensitive, so much so that she has remained in bed a greater part of the time. For the past few days it has been very sensitive and she has vomited several times. Examination showed a very large umbilical hernia, the skin over which was inflamed and was very sensitive on pressure. Although we fully appreciate that so fleshy a

patient with such a large hernia, an operation was dangerous, yet she said she could not stand the pain and was willing to undergo the operation. At operation we found the sack filled with acutely inflamed omentum and transverse colon. The Mayo operation was performed. She stood the operation well but the peritonitis became general and the patient died on the third day of general peritonitis. I think the infection spread from the intestine that had been strangulated before operation.

Case III.—Strangulated inguinal hernia. Mrs. K. 67 years old. Has had a hernia for many years. Never entirely reduced yet has caused but little trouble. Has been constipated for many years. Bowels have not moved for three days, has vomited frequently. To-day the vomitus has been dark colored. Temperature normal, pulse 120 and very weak. A small strangulated inguinal hernia present. Operation done under cocaine as quickly as possible. Patient died three hours later. Had I been working to keep down my mortality rate I would not have operated on such a bad case, yet I wanted to give her the only chance of recovery.

Case IV.—Mrs. K. 47 years of age. Patient states that for the past four years she has been troubled with her stomach. Has had several attacks of jaundice but has never had severe attacks of pain like gall stone colics. During these five years her health has been so poor that she has been able to do but little work. Present trouble began six weeks ago at which time she began to get jaundiced. During these six weeks she has been able to retain but little food. She is so weak that she has stayed in bed a greater part of the time. Examination shows a very weak, slightly jaundiced patient. She is very sensitive over her stomach and gall bladder, but nothing can be felt except a slightly movable right kidney.

Operation was advised in the belief that she had either a carcinoma or gall-stones. But at operation neither carcinoma or gall-stones were found. The gall-bladder was distended. This was drained. The appendix was very adherent. This was removed. As the patient was very weak nothing was done for the movable kidney. The patient stood the operation badly. For several days following the operation the pulse remained very weak, and she was unable to retain any food by stomach so rectal feeding was kept up. At the end of the week she gradually began to take a little food and was gaining her strength. On the 12th she died suddenly. The cause of her death we were not able to learn as we could not obtain consent for an autopsy.

Case V.—M. S. Female. Age 9.

*Patient's history.*—Has always been in good health till four days ago while eating dinner she was taken with vomiting. She was put to bed but no physician saw her till the next day. At this time she complained of vomiting and pain in her abdomen. Examination showed temperature 104 and pulse 130. The abdomen was distended but not sensitive except slightly so in iliac region. Calomel was given. The next day her pulse was 140 and temperature 105.2, abdomen very distended, has had faecal vomiting, mentally dull, and in every way a very sick child. As the child seemed to be doing so badly, an operation was advised to see if we could determine the cause of faecal vomiting. Just as the ether was started she

had a convulsion. On opening the abdomen the peritoneum was found greatly congested and multiple hemorrhages in the mesentery of the small intestine, there was another large one near the base of the appendix and a still larger hemotoma retro peritoneal back of the caecum. The peritoneum was everywhere congested, but there was no fluid in the peritoneal cavity. The appendix seemed no more involved than the rest of the intestine. As there seemed to be no way of stopping the hemorrhage we closed up the incision as soon as possible.

This seemed to be a case of peritonitis accompanied with hemorrhages, but the cause for same we were unable to determine as there was no history of an injury or any previous history of predisposition towards hemorrhages.

From this report it is seen that the mortality rate following operations is low. In the hospital cases there was a mortality rate of about 5% while in my private work the mortality rate is only about 1½%. Considering this death rate about the average it would seem that the great fear of the hospital and operation is not justifiable.

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## THE ALCOHOLIC PSYCHOSES.

*Read at a meeting of the North Bristol Branch of Massachusetts Medical Society, September 16, 1909.*

By C. G. McGAFFIN, M. D.,
*Assistant Physician and Pathologist, Taunton State Hospital, Taunton, Mass.*

It has only been within recent years that scientific workers have been able to point out and satisfactorily explain the intimate relationship that exists between insanity and intemperance. The importance of alcohol in the etiology of insanity has been recognized for ages, for even Shakespeare made Cassius to say, " Oh, that man should put into his mouth a poison to steal away his brains."

A drunken man exhibits the abstract and brief chronicle of insanity going through its successive phases in a short space of time and in many cases prolonged use of the stimulant produces permanent mental-derangement. There was perhaps a weakened constitution to begin with and a low grade of mentality, but the cause was the same, as is the result.

The stigmata probably came from parents addicted to the use of alcohol, and the strength that should have been given him was lacking. Alcohol as a fertilizer for the family tree has ever made the twigs bent and dwarfed and the fruit small and

wormy. Its influence is felt in almost every history of cases of dementia praecox, imbecility and epilepsy. Mönkmöller found, in the reformatory school in Berlin, hereditary taint due to parental alcoholism in 67.2% of all pupils.

The population of the insane hospitals is being increased in large percentages every year by alcoholic cases to say nothing of the other forms of insanity in which alcohol is an etiological factor. In this hospital during the last twenty years the average percentage of the alcoholic psychoses has been 11.2%, the highest 17% in 1899 and the lowest 7% in 1890. This does not take into account other forms of psychoses in many of which alcoholic intemperance was a causative factor.

In 1906 among the 21,297 patients admitted to the asylums of England and Wales intemperance in drink was responsible for 31.7%.

Herschl, in Vienna, found an alcoholic etiology in 34% of all cases that he studied. These patients are about of an age when they should be active members of the community and not the cause of broken homes and an unnecessary expense to the state.

The grade of alcoholism may be either acute or chronic, but the chronic alcoholic may have as many acute attacks as his desires and income will permit.

Acute alcoholism is the acute intoxication following excessive indulgence in alcoholic beverages. There is over activity in the psycho-motor field. The patient is active, jolly, speaks and acts without restraint—the motor excitation is increased, voice is louder and smile broadens into laughter—he is hasty and passionate and a trifling word or accident suffices to start a quarrel. Later, excitation is replaced by signs of paralysis, disturbance of speech, staggering gait, and even complete motor paralysis.

Chronic alcoholism is well described by Diefendorf as follows: "A gradually progressive dementia with diminished capacity for work, faulty judgment, defective memory, moral deterioration, occasional delusions, frequent hallucinations and various nervous symptoms."

Many characteristic psychoses arise on a basis of chronic alcoholism. Among these may be mentioned delirium tremens, Korssakow's psychosis, acute alcoholic hallucinosis, alcoholic hallucinatory dementia and alcoholic paranoia.

*Delirium Tremens:* A form of psychosis characterized by apprehensiveness, mental confusion, disorientation, motor restlessness, illusions and hallucinations, both auditory and visual. The hallucinations of sight are perhaps the most characteristic symptom of the disease and from their character cause much of the fear shown by the patients. They see all sorts of animals, large and small moving about them; rats scamper about the floor, vermin cover their food and crawl into their eyes and mouths; serpents crawl over the bedding; birds of prey and fantastic figures hover about in the air. At other times the hallucinations may be of a pleasing nature—angels are seen and beautiful music heard. The patients hear all sorts of noises —the roaring of beasts, ringing of bells, firing of cannon. They are the subject of conversation of their friends, are taunted by passing crowds and threatened with death.

The attention shows a marked disturbance. Forcible language may hold them for a few moments, but they constantly revert to the objects which particularly attract them.

There is usually some clouding of consciousness and a marked disturbance of orientation. Memory for remote events is unimpaired, but recent events are not distinguished.

In actions, the patients are controlled more or less by their hallucinations, and carry out the commands made to them by the voices or try to ward off the impending attack of the grotesques of their false sight.

Prognosis is good and recovery rapid, although pneumonia may be a complication especially during the winter months.

Case 1. J. R. (No. 17974), age 33, admitted to this hospital on Oct. 11, 1907 from Taunton, having been taken off an East Taunton car in a badly intoxicated condition, suffered from delirium tremens at the Taunton jail and was sent here. Patient says he began to drink when nineteen or twenty years old, is not a steady drinker but goes on periodical sprees. Has had delirium tremens seven or eight times.

His hospital history has been a series of long periods of detention here, when he has been able to work well in the kitchen and elsewhere, then he would be allowed to go out and look up work for himself and after a week or less residence outside he would be brought back in a drunken condition, covered with dirt and bruised; he would then have a period of delirium tremens from which he would recover quickly and take up the old cycle. In his periods of delirium tremens he has given evidence of numberless phantastic visual hallucinations but auditory hallucinations have been absent. He is very apprehensive and begs not to be left alone. During his drinking he eats little or nothing so his

stomach is badly upset and will not retain any food for some days. After his delirium has passed off, he remembers his hallucinations perfectly and describes them vividly.

*Korsakow's psychosis* has been termed a chronic alcoholic delirium, and by some is regarded as a severe form of delirium tremens. It is usually associated with polyneuritic symptoms and is characterized by loss of the impressibility of memory, disorientation and a tendency to fabrications. The symptoms at onset are very similar to delirium tremens. The delirium symptoms subside in due time but the disorientation continues and the Mërkfahigkeit becomes marked. Memory for remote events is not wholly lost, but the recent memory is much of a patchwork and it is here that the patient uses the pseudo-reminiscences to fill in these blanks. They are of apparent accuracy and possess a wealth of detail.

At the onset the patients are anxious but later become indifferent and apathetic. The physical symptoms are usually those of alcoholic neuritis, although they may be absent; tremor of the fingers and tongue are common; and loss of tendon reflexes.

Case 1. P. W. L. (No. 18396), male; age 64. Patient was admitted from Fall River, Mass., Sept. 1, 1908; had suffered from what his sister calls " horrors and jimgams " four weeks before admission, and had been in Fall River hospital since then.

On admission was quiet, did not know what year it was or how old he was—memory for recent events very poor, knee jerks absent and at times complains of neuritic symptoms. Later became entirely disoriented, not knowing the date and thinking he was in the Soldiers' Home, Togus, Me., when questioned usually says he had his last drink yesterday and gives many details of his expeditions out to get a drink also relates some wonderful tales of his daily experiences; impressibility of memory very poor—32, 25, 11, after one minute with conversation is recalled as 25, 86, 19, similar results with words.

He is agreeable and pleasant and during his hospital residence has shown no conduct disorder.

*In acute alcoholic hallucinosis* we have a psychosis closely related to delirium tremens, the etiology of the two diseases are identical and why one individual develops the one and another the other is not known. Acute alcoholic hallucinosis represents a large percentage of the cases of alcoholic insanity admitted to institutions in this country, and occurs in men of middle age who have been accustomed to drink a little every day. The onset is usually sudden with auditory hallucinations of a dis-

turbing nature and they are called vile names, murderers and liars—hear that they are to be killed or that the wife is unfaithful. All this is very real to the patient and it is almost impossible to persuade him to the contrary. There may be a few visual hallucinations but they are rare.

Soon a series of depressing delusions arise on the basis of the hallucinations. These delusions usually remain within the realm of possibility and seem to be one effort on the part of the patient to explain his hallucinations. Consciousness is rarely disturbed, and the emotional attitude is usually one of anxiety. They may become very dangerous patients taking the law into their own hands to avenge their persecutions.

Case 1. E. M. D. (18450), aged 42. Patient was admitted from Taunton on Nov. 8, 1908; had been in Howard, R. I. State Hospital for two months before coming here. His home is in Berkley and while visiting his brother in R. I. he had been drinking heavily and was sent to Howard. Has been drinking more or less for years. He is constantly bothered by auditory hallucinations, but they have been less troublesome lately. The voices tell him what to do and what not to do; they threaten him and say he is to be killed; they talk about his relatives and friends and he says he don't know what to think. He believes in them thoroughly and thinks they have an influence on his life.

On admission he was much absorbed in his hallucinations and it was hard to gain his attention, but now they bother him less and he conducts himself in a more natural manner. He works in the laundry every day and shows no conduct disorder. Shows marked insight, but will probably tend to dement.

*Chronic alcoholic hallucinatory dementia:* a type of alcoholic psychosis frequently representing the end stage of acute alcoholic hallucinosis and numerous attacks of delirium tremens. The active symptoms of the hallucinosis or delirium have almost passed off, when suddenly the patient develops hallucinations particularly of hearing, they are threatened, others are reading their thoughts or are being experimented upon as they sleep, many somatic delusions arise, their organs are shrinking up. They do not change but remain the same from week to week, judgment remains fairly good and memory is somewhat retained but a considerable amount of mental weakness can be detected. The patients usually show anxiety or irritability at the beginning, but this changes later to the humorous attitude of an alcoholic. The course of the disease is commonly progressive, the abstinence will tend to the slow disappearance of the hallucinations and delusions leaving a condition of simple dementia.

Case 1. M. J. H. (No. 17976), age 49. Patient was admitted on Oct. 15, 1907 from Fall River. Strong alcoholic history—one brother has been in this hospital with an acute alcoholic attack. Physical examination revealed nothing abnormal. On admission patient was hallucinated, fault finding and irritable—has many somatic delusions—thinks his lungs are all gone and he breathes only in his throat, stomach completely filled up and that he never has any bowel movements; says he does not sleep at night. He talks with God on many occasions; tastes saltpetre and acid in his food. Has attempted suicide once. He assumes a jocular attitude at some times and at others is cross and irritable.

*Alcoholic paranoia:* a psychosis very similar to the preceding and by some classed with it. This disease comprises a small group of patients who slowly develop a delusional state of extreme jealousy. Delusions of unfaithfulness on the part of the husband or wife are the most common, trivial happenings are looked upon as proof of infidelity. Along with these there may be delusions of poisoning. There is no clouding of consciousness, but in actions they present much weakness.

The course of the disease is usually progressive, the delusions seldom disappear permanently but abstinence brings improvement. Return to home surrounding with a chance to secure alcohol soon leads to a recurrence of the delusions.

Case 1. C. L. B. (No. 18381), aged 35. Patient was admitted from Fall River, Aug. 18, 1908. An alcoholic history—one brother (No. 14844) died in this hospital. Before admission had been very jealous of his wife and accused her of being with about every man in Fall River—thought that his fellow workmen were trying to poison him as his lunch tasted strangely. Physical examination revealed nothing abnormal. On admission patient was very apprehensive, very suspicious, thinking that his fellow patients are talking about him—when his wife visits him he accuses her of immorality. After a year's residence in this hospital he seems to still be governed by his delusions, but he evades direct questions and says be wishes to forget the past and let bygones be bygones.

Of course the first point in the treatment of these cases is complete abstinence from alcohol in every form. Care in an institution is the best in most cases to accomplish this end, as they are unable to reach it independently. Legal commitment becomes necessary when the patient does not appreciate the need of treatment. The patient's power of resistance is shown by his insight and willingness to prolong hospital residence.

To ward off an attack of delirium tremens, ergot has been

advised in fifteen minum doses or apomorphine hypodermatically gr. 1-30, increased until vomiting sets in.

Hypnotic suggestion is of advantage in some cases, but much depends upon the personality of the one in charge of the patient.

When an alcoholic patient comes into this hospital he is given a warm bath and put to bed where he remains a variable length of time according to his condition. He is given an ounce of magnesium sulphate followed by an enema in the morning. If in a state of delirium the continuous bath is of much advantage, with a special nurse to attend the case. This use of a separate attendant is very beneficial to lessen the apprehensiveness in delirium cases especially. Good nutritious food is an essential, and forced feeding is always indicated.

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# TREATMENT OF RETRO-DISPLACEMENTS OF THE UTERUS.

*Discussion of Dr. Boyd's Paper at the Albany County Medical Society, March 17, 1909.*

By J. B. HARVIE, M. D.,
*Attending Surgeon, Troy and Samaritan Hospitals.*

It is possible that the correction of retro-displacements of the uterus will always remain more or less of a perplexing problem. It is a notorious fact that a certain percentage of operations done for this particular trouble are far from ideal in their results, either resulting in a relapse or failing to give the relief hoped for. The permanent reposition of a displaced organ is about as difficult to accomplish as to change the course of a living stream. The apparent simplicity of many of the operations recommended for retro-displacements has tempted many inexperienced operators to indulge with impunity in a proceeding which involves a greater display of careful technic and mechanical ingenuity than almost any other. The very fact that so many devices have been suggested and many of them most ingenious from a mechanical standpoint is sufficient proof of their shortcomings. I am free to say that a rather wide experience in this field has led me to believe that a surgeon must have his technic well in hand and a proper comprehension of the anatomical relations and physio-

logical functions before undertaking an operation which involves immediate and remote consequences so important.

The proceedings adopted for the correction of uterine displacements are mechanical and operative. It often happens that by mechanical means we may succeed in correcting the simpler displacements; those displacements unassociated with pelvic complications where the uterus may be brought into position readily and maintained there by a properly adjusted pessary. If the uterus is adherent, anything like force never should be applied in accomplishing this, and there is little use in applying a pessary in instances of extreme retroflection. The retroversions are exceedingly responsive to mechanical devices.

Just what percentage of uterine retro-displacements are congenital and unassociated with disturbances sufficient to attract the attention of the patient is difficult to determine and must always remain more or less of an unknown quantity. Acquired displacements, having for their causation injuries, certain occupations, habits of the individual and infections, will most commonly constitute the class looking for relief. It occasionally happens that a retro-displacement is discovered accidentally, the patient giving no history of symptoms pointing to that region. Those cases should be left gloriously alone and the patient should be allowed to remain in total ignorance of the condition.

Given a case of uterine retro-displacement in which the individual receives relief from the application of the pessary, the question comes up whether she should be asked to go through life wearing a support, which is more or less of an embarrassment, or submit to an operation for its permanent relief. In the one instance the person will necessarily remain under observation continuously, receiving treatment and readjustment of the appliance at regular intervals. In the other instance the patient is asked to submit to a major operation, which always involves some risks so far as the life of the person is concerned. An operation which involves the opening of the abdominal cavity will necessarily carry with it certain inevitable risks, and with a proper understanding the patient should be allowed to decide pretty largely whether she will accept the risk, small though it be, or continue the use of the pessary.

I have assumed that the scope of this discussion is to be confined to that class of cases in which no permanent structural

change has come about either in the uterus or its appendages interfering with reproduction.

Mechanical appliances will necessarily find more or less of a limited field and we are forced to seek other measures which will accomplish our purpose and consequently are compelled to resort to some one or other of the different operations which have been recommended. If the woman has borne children, injuries of the pelvic floor must be carefully inquired into and corrected, the mobility of the uterus and the annexa must be ascertained positively. This will necessitate a careful, painstaking examination, repeated several times perhaps. It is seldom that we can ascertain positively all the information necessary at the first examination. Although the patient comes to us with confidence there is, nevertheless, a certain fear associated with the proceeding which precludes them from giving themselves up and submitting in a manner satisfactory to the examiner. In certain persons a morbid fear of being hurt cannot be dispelled, and for those patients complete relaxation under an anesthetic is necessary. The choice of an operation will rest with the operator, and if his experience has been large enough and long enough to aid him in making a decision he will naturally accept that particular one which in his hands has proven itself to be the most satisfactory. The operation which naturally attracts our attention, on account of its being the first operation recommended for the correction of retro-displacements of the uterus, as well as the cleverness of the device, was first suggested by a Frenchman named Alquié. He proposed the shortening of the round ligaments by finding the outer ends of the ligament at the external abdominal ring and drawing it out through the inguinal canal as far as its strength would permit. Alquié never applied this operation to a living woman, but practiced the operation frequently upon animals. To Alquié, however, belongs the credit of having conceived a most ingenious and artistic operation. Advances in operative technic and operative methods made it possible for William Alexander of Liverpool to carry out Alquié's ideas successfully, and to Alexander belongs the credit of having popularized this operation, which is now commonly recognized as the Alexander operation for the shortening of the round ligaments. It would seem as though this operation was entitled to very serious consideration inasmuch as it can be applied very successfully in cases free from complications.

The present day methods of shortening the round ligaments extra-peritoneally have undergone marked changes since Alexander did his first work. The technic as it is practiced now consists in opening the inguinal canal throughout its entire length, finding the round ligament, shelling the peritoneum from it as it is drawn out through the internal abdominal ring until the cornu of the uterus is brought in contact with the parietal peritoneum. This is easily determined by the impulse which is readily felt when traction is made on the ligament. The distal end of the ligament is usually slender and feeble, but the proximal end possesses considerable strength. The ligaments being drawn out on both sides, the next step in the operation consists in quilting them in the inguinal canal in such a way as to insure their permanent residence there. This is done by suturing the internal oblique muscle and the round ligament to the shelving border of Poupart's ligament by means of a continuous suture carried throughout the entire length of the inguinal canal and covering this over with the external oblique by means of a continuous suture. This proceeding is usually followed by a very firm implantation of the round ligaments, which should remain permanently.

One can readily understand that this operation will apply to cases in which we are positively certain that no hindrance exists in bringing the uterus forward. When this operation has been satisfactorily completed we must concede that it possesses merits which few of the others can claim. Incident to pregnancy the organ is free to behave as a normal uterus should. Women occasionally complain of dragging in the inguinal region at this time, but no more than patients who have had intra-abdominal shortening of the round ligaments or suspension operations. The implantation of the ligaments in the inguinal canal has stood the test most satisfactorily in those cases I have had the opportunity to follow and I am unaware of any obstetrical complications.

We now come to the most popular and most commonly practiced operation, Ventral Suspension, and by Ventral Suspension is meant the attachment of the uterine fundus to the parietal peritoneum close to the pubic arch. The suture is made to pass through the peritoneum, taking in its grasp about 1 cm. of peritoneum and emerging about ½ cm. from the abdominal incision. The suture is then passed through the uterine fundus, taking in about 1 cm. in width and sufficient depth to hold firmly, and

about 1 cm. posteriorily to a line drawn from one Fallopian tube to the other. The suture is then carried through the corresponding point of peritoneum on the opposite side and then tied. It will be found when this is done that the uterus will fall into an easy anteverted position. A uterus so attached on examination afterwards will be found to possess a perfectly normal mobility and it would be difficult for the most expert to differentiate between a well executed suspension and a normal uterus without artificial attachments. Whether we apply one or two sutures is a matter of choice with the operator. Personally, I apply two sutures, and I use chromatized catgut of the twenty day variety, preferably No. 1 catgut sterilized with cumol. I may say silk does well as a suture, but is open to the objection of being non-absorbable.

Unfortunately the technic of this operation as originally described by Dr. Howard A. Kelly has not been strictly followed, and in attaching the uterus to the anterior abdominal wall the fundus has been scarified and the suture passed too deeply into the abdominal wall, making an attachment about as firm as though a nail had been driven into it. This will constitute a ventral fixation and the execution of such a proceeding in a child-bearing woman will constitute objections of a most serious kind.

The success of a Ventral Suspension necessitates the closest calculation to secure an easy resting place for the uterus so that the least strain will be obviated on its attachment. If the suture should be applied too far forward on the fundus so that the ligature is called upon to sustain the weight of the uterus, it will be a matter of a very short time when it will break away from its moorings, or the peritoneal ligament which is formed in those cases will become so stretched out that the uterus will be permitted to drop back into its former position. The moment the peritoneal ligament is called upon to sustain the weight of the organ it soon ceases to be of any use, but so long as it performs its functions by acting as a stay just so long will it continue to hold the uterus in anteversion.

Intra-abdominal shortening of the round ligaments as recommended by Mann, Wylie and others has not proven very satisfactory. I have done this operation a few times and have in addition supplemented it by placing a purse string suture low down in the broad ligament. This seems to maintain the uterus fairly well

in a forward position and I can see no objection to the proceeding, but I am unable to speak of its permanency inasmuch as the operations have been done too recently. I may say, however, that one of the cases so operated is now pregnant for the first time and so far has expressed very little discomfort.

The feeble attachment of the round ligaments in the inguinal canal would argue against their standing any prolonged strain and this has perhaps accounted for the reported failures of the Wylie and Mann operations.

In conclusion I wish to say that in my experience the Alexander operation has not been associated with complications during gestation except some discomfort referred to the inguinal region. That labor has not been complicated and the process of involution has been prompt and satisfactory.

I have never seen a case presenting unusual complications following Ventral Suspension. Neither have I heard of any — but it would be exceedingly remarkable taking into consideration the extensive work done in this field if adverse reports did not come to us occasionally. A high forceps delivery or protracted labor is common experience with obstetricians independent of surgical intervention.

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## TUBERCULOSIS DISPENSARY WORK IN ALBANY.

*First Annual Report of the Tuberculosis Clinic, South End Dispensary, Albany, N. Y. Read before the Albany Committee on the Prevention of Tuberculosis of The State Charities Aid Association, October 26, 1909.*

By ARTHUR T. LAIRD, M. D.

### Introduction.

The factors essential to a municipal crusade against tuberculosis are according to Locke:[1]

*I. Factors Directly under Control of the Health Authorities.*

1. Compulsory notification and registration of all cases of tuberculosis.
2. Medical inspection of the home conditions of all cases reported.
3. Obligatory free disinfection after the removal or death of a consumptive.
4. The maintenance of a laboratory for free bacteriologic examinations.

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1. Locke. Second Annual Report, Consumptives' Hospital Department of City of Boston.

5. Enforcement of laws against promiscuous spitting in public places.

*II. Institutions for the Care of the Tuberculous.*

1. Hospitals for the very advanced ("dying") cases.
2. Sanatoria for those in the incipient stages.
3. Dispensaries.
4. Provision for the great class of middle-stage consumptives, *i. e.,* sanatoria camps, cottage hospitals, etc.
5. Convalescent homes or colonies for those discharged from the sanatoria.
6. Special institutions for children, *i. e.,* sanatoria camps, hospitals, out-of-door schools, etc.

*III. General Provisions.*

1. The formation of comprehensive plans of organization to the end that all efforts directed against tuberculosis, whether public or private, shall be properly co-ordinated.
2. The adoption of measures for the improvement of the workshops and dwellings of the poor.
3. Efforts directed to the dissemination among the people of knowledge concerning the nature and means of prevention of the disease.
4. Provisions for relief among the tuberculous poor.
5. Special provision for scientific work and investigation.

In so complicated an organization a definite centre is obviously the first requisite. That the tuberculosis dispensary can best serve as this uniting point was long ago emphasized. All activities of the movement should be focussed in the dispensary which should in turn serve as the distributing centre also. "All cases, regardless of the stage of the disease or particular circumstances should first be thoroughly investigated and recorded at the dispensary." These views of Locke and others have met with the approval and endorsement of many eminent authorities, and the International Congress on Tuberculosis at Washington put itself on record as considering the tuberculosis dispensary one of the most essential features of any campaign against the disease.

In this report there will be considered: I. The Functions of a Tuberculosis Dispensary; II. The First Year of Tuberculosis Dispensary Work in Albany; III. The Organization and Maintenance of the Dispensary; IV. Needs for the Future; V. Sum-

mary; VI. Municipal Support of Tuberculosis Dispensary Work in Other Cities.

## I. The Functions of a Tuberculosis Dispensary.

These are according to Locke:

(a) To serve as a *center for the general organization;*

(b) By the aid of every available means at its disposal to make a definite *early diagnosis;*

(c) To *investigate the social and financial condition* of the patient;

(d) After such investigation to *determine the disposal of the case,* whether it be suitable for the sanatoria, sanatoria camps, hospitals for advanced cases or for home treatment;

(e) To *keep a permanent record* of the residence and condition of the patient wherever he may be;

(f) To *assume the care of* those *patients* who are to be treated in their *homes*;

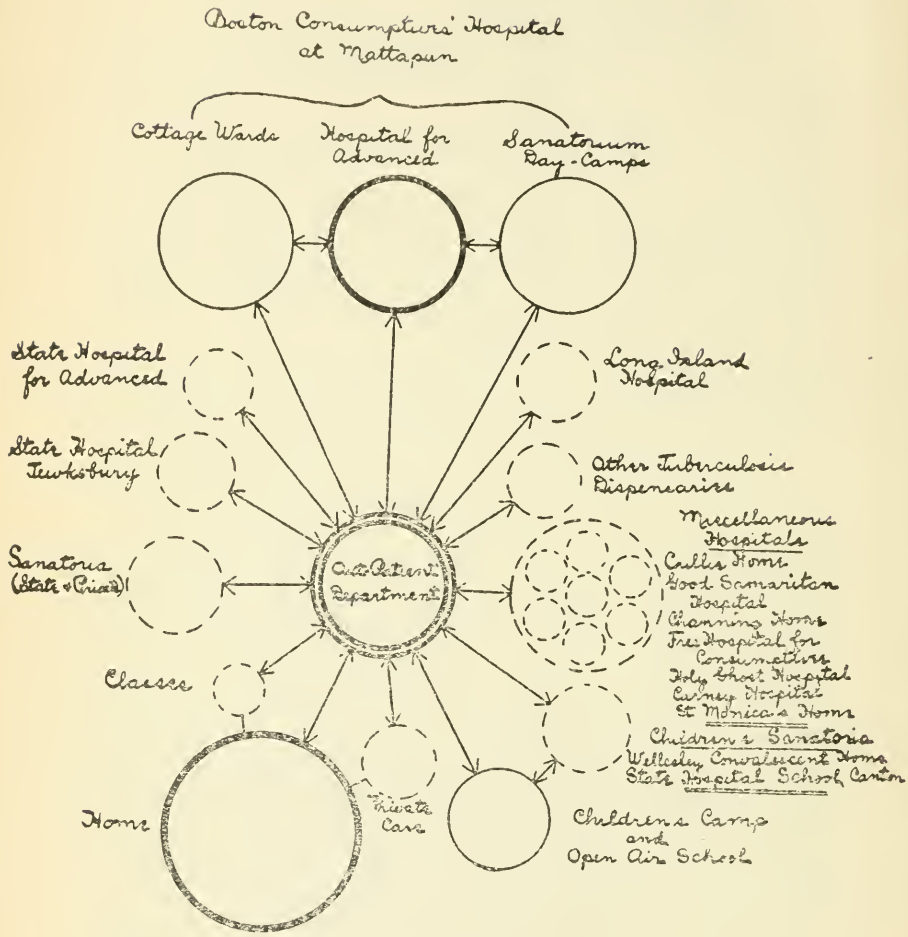
(g) To carry on aggressive work in *searching out the infected.*

## II. The First Year of Tuberculosis Dispensary Work in Albany.

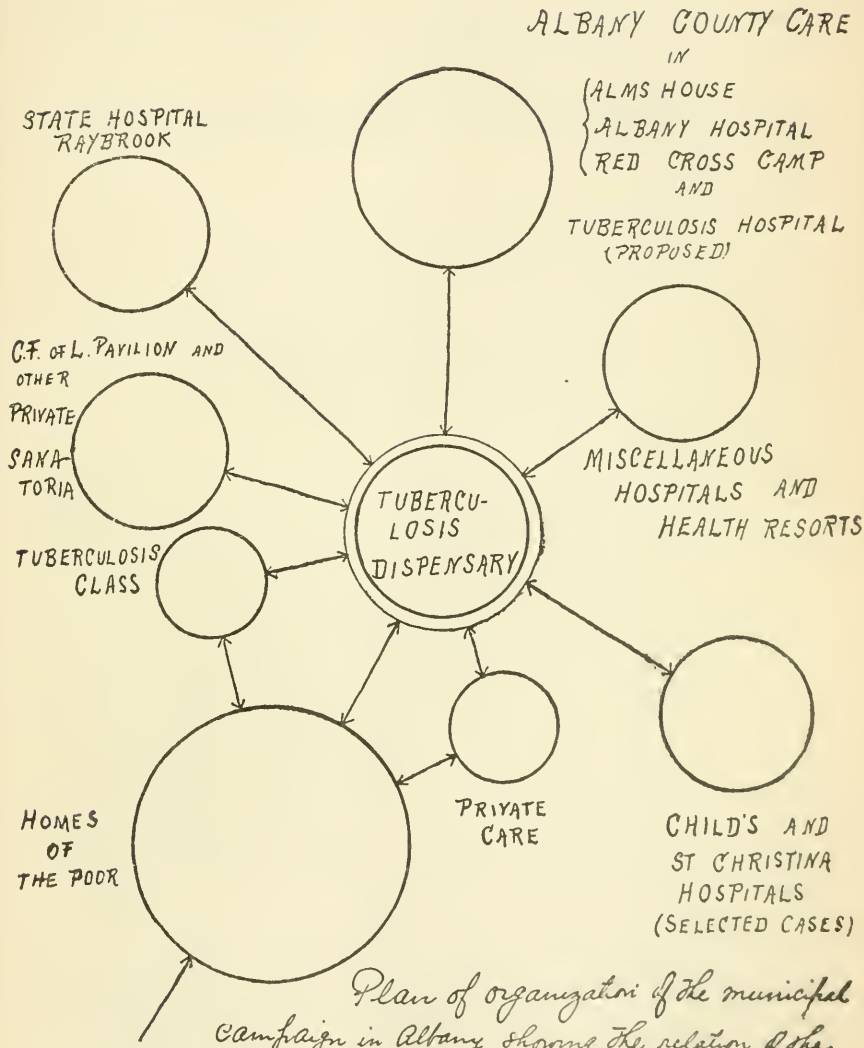
The tuberculosis clinic at the South End Dispensary was opened October 19, 1908. How the various functions of a tuberculosis dispensary have been fulfilled will appear from the following report:

(a) *Center for the work.*—It has been the purpose of those in charge to make the dispensary a "clearing house" for the various departments of work for poor tuberculous patients. There has been co-operation with the Albany Committee, especially its relief committee; the Albany Guild, the city authorities and the various sanatoria, camps and hospitals. Patients have been referred by them to the dispensary, and by the dispensary to their care.

The accompanying diagrams show the relation of the dispensary to other institutions caring for consumptives in Boston and in Albany. The work begins in the homes of the poor, where patients are induced in one way or another to visit the dispensary. The double arrow indicates that patients are referred to and from the dispensary or "clearing house." The best feature of the Boston plan, an adequate hospital for advanced cases, is still lacking in Albany, its place being supplied only in part by the almshouse, small private institutions and temporary camps.




Plan of organization of the municipal campaign in Boston, showing the relation of various institutions caring for consumptives.




Plan of organization of the municipal campaign in Albany showing the relation of the various institutions caring for consumptives.

(b) *Early Diagnosis.*— In all, 221 patients have been examined at the dispensary building.

Of these, 108 have been cases of definite pulmonary tuberculosis or consumption, of whom 38 were incipient cases, 55 moderately advanced and 15 far advanced.

There were also 12 cases of latent or cured and of non-pulmonary tuberculosis and 15 cases probably tuberculous. Some of the latter did not remain under observation long enough for complete study.

Beside the patients examined at the dispensary building there were 50 patients examined at their homes by members of the dispensary staff and visited by the dispensary nurse.

Of these, 33 were cases of definite pulmonary tuberculosis, of whom 17 were patients with far advanced, 10 with moderately advanced, and 6 with incipient disease, making in all 141 cases of consumption or pulmonary tuberculosis that have come under dispensary care.

In arriving at the diagnosis the following procedures are used: First, a complete history is taken, suspicious symptoms being noted. The temperature, pulse, respiration and weight of the patient is recorded and a specimen of sputum secured for examination. Then follows a physical examination of the chest. In doubtful cases the chest is examined at least twice, each time by a different member of the staff; three specimens of sputum, secured on different days, are examined, and a temperature record kept by the nurse, or in the case of intelligent patients, by the patient himself, is studied. The tuberculin test and X-ray examination are used for confirmatory purposes. In the more advanced cases the diagnosis is, of course, very simple, but the duty of making "definite early diagnosis" wherever possible necessitates in certain cases the employment of every means at the disposal of the dispensary.

(c) *Investigation of Social and Financial Conditions.*— The greater part of this work has been done by the tuberculosis nurse, one of the trained nurses of the Albany Guild for the Care of the Sick. The data secured has been laid before the Relief Committee of the Albany Committee on the Prevention of Tuberculosis and by and through this committee many needs have been met, over a thousand dollars being expended for this purpose.

(d) *The Disposal of the Case.*—When the diagnosis is settled the consumptive patient is at once advised to enter a sanitarium or

hospital, if possible, as this not only offers him the best hope of recovering his health, but removes him as a source of infection from his family.

Patients with incipient disease are instructed to apply for admission to the State Sanitarium at Raybrook.

As there is usually a delay of several months before they can be admitted on account of the waiting list, they are advised also to apply to the county authorities for admission to a hospital or camp.

When going to a sanitarium or hospital or camp is out of the question, the patient with incipient disease is placed either under the care of the tuberculosis class, or of the dispensary, and helped to live the outdoor life at home.

Patients with moderately advanced disease are advised to go to a hospital or camp if possible; if not, they are placed under the home care of the tuberculosis class or the dispensary.

Patients with far advanced disease are urged to avail themselves of Albany County care in a hospital that will receive them. Those unable to go receive nursing and care in their homes.

In accordance with this plan patients, nearly always as a direct result of their having consulted the dispensary, have come under regular supervision and care as follows:

Eleven patients entered Raybrook;
Twenty-four the C. F. of L. Pavilion;
Sixteen the Albany Hospital Camp;
Twelve the Red Cross Camp, and
Five the Albany County Hospital.

Allowing for duplicates this makes a total of nearly sixty that have been induced to enter tuberculosis hospitals or sanitaria for a longer or shorter time. This has been both to their advantage and that of their neighbors. The provision for the care of tuberculous patients by the Board of Supervisors has greatly simplified the matter of securing their entrance into institutions. A permanent hospital for the care of such patients is now urgently needed.

Patients returning to the city from hospitals or sanitaria have been looked up and have been urged to place themselves under the care of the dispensary when they cannot afford a private physician. The superintendent of the State Hospital at Raybrook advises discharged Albany patients to report to the dispensary and sends the dispensary a list of such patients. Recipro-

cating, the tuberculosis nurses have visited the addresses of sixty-nine cases of former Raybrook patients from Albany and such information as could be obtained regarding their present condition has been sent to Dr. Garvin.

(e) *Records.*—Permanent records of the history, examination, visits and movements of the case are kept on file at the dispensary.

(f) *Home Care of Patients.*—The *tuberculosis class* has enrolled during the year twenty-five members, including some who later entered institutions. The members of the class report once a week to the dispensary and receive advice and medicine needed. Their exercise and treatment are carefully regulated. Record books are kept by the patients. The treatment consists of life in the open air, abundant nourishment, properly regulated rest and exercise and medicines when needed.

Beside these, there have been sixteen under the regular home care of the dispensary, mostly patients too sick to report at the dispensary building. Instruction is given in methods for disposing of sputum and preventing infection.

Between *forty and fifty* patients have thus been under the regular supervision of the dispensary at their homes, besides those who have reported irregularly. The home visitation by the nurses has been under the direction of the Albany Guild for the Care of the Sick. In this work the nurses have made almost four thousand visits (3900). The tuberculosis nurse has also spent about five hundred hours at the clinics, to say nothing of the time spent by assistant and pupil nurses. As will be readily seen the visiting nurse is a very important factor in the work. In this connection the following quotation from an editorial[1] in the Journal of the American Medical Association shows that such work is generally appreciated and has great value in spite of the fact that there are many "*unteachable consumptives*" among the very poor, as Miss Lent[2] has demonstrated:

"Segregation or isolation is the logical solution of the problem thus presented; but it must be borne in mind that we are dealing with independent citizens on whom the attempt to force segregation or isolation may react very unfavorably. In Germany great difficulty has been experienced in getting patients to go to hospitals for advanced cases on account of the feeling of the patients that the hospital is merely a place in which to die. The very

[1]Journal of the American Medical Association, October 16, 1909. L III 1294.
[2]International Congress on Tuberculosis. Washington, 1908.

terms 'segregation' and 'isolation' are objectionable, and our contemporary suggests that the term 'institutional care' be used instead.

"In removing the prejudices of the people and preparing patients for institutional care, the services of the visiting nurse are indispensable. While she cannot train patients to prevent the spread of the disease, amid the surroundings of poverty, she can by her investigations impress on the community the need of institutional care in these cases, and she can lead the patients themselves to see how much better it would be, both for themselves and for their family and friends, if they would accept the proffered institutional care. This much has been accomplished by the work in Baltimore, it seems, for it is stated that the patients there do not shun the hospital as patients do in Germany.

"Whether institutional care will furnish a complete answer to the tuberculosis problem may well be doubted; but it has its important place in the agencies for controlling the disease, which has its roots deep in the social conditions which make for poverty, physical and moral degeneration. To remedy these conditions may be the task of more than one generation, but the urgent demand appears to be to extend the work of the visiting nurse and to supplement it by providing institutional care for such patients as she can induce to accept it."

(g) *Searching Out the Infected.*— Where possible the other members of families in which there are tuberculosis patients are brought to the dispensary for examination or are examined in their homes. There have been examinations of more than one individual in 26 families. In one family seven members were examined.

## The Organization and Maintenance of the Dispensary.

The carrying on of the work of the dispensary has been made possible by the co-operation of three institutions:

The South End Dispensary;

The Albany Guild for the Care of the Sick;

The Albany Committee on the Prevention of Tuberculosis.

The cost of the work for the first year has been approximately as follows:

*South End Dispensary*: Rooms, heat, light and medicines, value about $200; services of the medical staff donated.

*Albany Guild for the Care of Sick:* Services of hospital graduate nurse, $800; has also given services of assistant nurses.

*Albany Committee on the Prevention of Tuberculosis:* Printing, supplies, etc., cash value about $150; beside this the work of the dispensary has been greatly facilitated by the activities of the Relief Committee.

It will be seen that the expense of carrying on the work aside from relief given has been something over a thousand dollars, not including services voluntarily rendered by workers in all three organizations.

*Organization.*— The tuberculosis dispensary is one of the regular departments of the South End Dispensary, situated at the corner of Ash Grove and Trinity place, and reached by the South Pearl street cars, going to Second avenue or Kenwood. The clinic hours are Monday and Wednesday, at 3.30 p. m., and Saturday at 8 p. m. The medical staff of the department is as follows:

*Attending physician:* A. T. Laird, M. D.

*Class leader:* C. K. Winne, M. D.

*Assistant attending physicians:* H. D. Cochrane, M. D.; C. B. Hawn, M. D.; J. P. O'Brien, M. D.

*Nursing staff:* Nurses in charge of the home work at various times have been Miss Elizabeth Hogan, Miss Alida Wiltse, Miss Lydia E. Betz.

Early in the summer Miss Betz was regularly appointed "tuberculosis nurse," and is still in charge. These nurses are all hospital graduate nurses, members of the nursing staff of the Albany Guild for the Care of the Sick, and they have been assisted in their work by the pupil nurses of the guild.

Miss Ethel Van Benthuysen, chairman of the Tuberculosis Department of the Albany Guild and of the Relief Committee of the Albany Committee on the Prevention of Tuberculosis, and her staff of social workers by their co-operation with the dispensary have greatly increased its usefulness.

## IV. Needs for the Coming Year.

*Nursing.*— The work has grown so that the help of an additional trained nurse is imperatively needed. However her salary is provided she should be one of the regular staff of the hospital graduate nurses of the Albany Guild for the Care of the Sick.

*Rooms.*— The present accommodations for the clinic in the South End Dispensary building are not entirely suitable for the following reasons:

The tuberculosis clinic must be held in rooms used at other times by the surgical clinic, the clinic for children's diseases, etc. Though every precaution is taken and it is not believed that there is any real danger from this practice it is not desirable and has not been approved by the State authorities in their inspection of dispensaries.

On certain days the rooms must be shared with another clinic, crowding both departments.

No suitable place is provided for clerical work, history taking or laboratory examinations.

There is no suitable place for the meetings of the tuberculosis class.

The proximity of the rooms to the street cars makes the rooms noisy and renders the physical examination of the chest difficult.

The medical staff of the South End Dispensary has recognized the need of better accommodations for the tuberculosis work and has recommended to the board of trustees that other rooms belonging to the dispensary be given to the tuberculosis department providing the income now obtained from their rent can be secured in some other way. Unless this were done the financial resources of the South End Dispensary would be strained and its work hampered.

The rooms on the second floor rent for about one hundred and eighty dollars a year and are heated and lighted. They would need considerable alteration and have the disadvantage of being near the car line as well as necessitating the climbing of a flight of stairs by the patients. Still, they might be converted into fairly satisfactory rooms for the purpose.

The small building west of the dispensary, now used as a store house for wall paper, but a part of the dispensary property, rents for one hundred and twenty dollars a year. It has good brick walls, is dry and would make a good building for tuberculosis dispensary purposes. Its interior is unfinished and unheated. The building of partitions, plastering and the laying of floors would cost in the neighborhood of two hundred dollars. Heat by stoves or radiators from the South End Dispensary boiler, which is already quite heavily taxed, would with light and plumbing increase the expense to about five hundred dollars. If a separate

heater were installed the cost would be increased to about one thousand dollars. This would not be a large price to pay for the equipment of a permanent modern tuberculosis relief station.

*Supplies.*— The supplies furnished by the Albany Committee on the Prevention of Tuberculosis during the past year have included:

*Sputum cups,* paper napkins, gauze, etc., for the purpose of preventing infection in the dispensary and in the homes of the patients. In accordance with the new State law regarding tuberculosis these should be provided by the city and the only reason they have not been during the past year is that sufficient appropriation was not made by the city last year for the carrying out of the provisions of the law by the health officer. Fumigations have been inadequate or delayed for the same reason. *Thermometers.* These are required for the use of members of the tuberculosis class, certain of the home cases and in the examinations at the regular clinics. A deposit of twenty-five cents is required when the thermometers are loaned to patients and they can pay it. *Printing.* The results accomplished by the tuberculosis dispensary could undoubtedly be improved if its work was more generally known. Reprints of its annual report and of special directions and advice and information for Albany patients could be secured at low rates. From time to time history charts and other blanks will be needed if the best work is to be done. The literature furnished by the State Charities Aid has been and will be distributed as freely as possible. *Sign.* A suitable sign on the outside of the building calling attention to the existence of a tuberculosis dispensary is needed. *Scales.* New scales are urgently needed. During the past year the patients have been weighed on the small scales designed for the weighing of babies, in the children's room. *Milk and Eggs.* If the trustees were provided with funds the supplying of milk and eggs to needy patients might properly be part of the work of the dispensary.

The income of the South End Dispensary is now fully taxed to carry on the work of its various departments. To increase the amount available for tuberculosis work there must be either an increase in the amount contributed to this work by the Albany Committee on the Prevention of Tuberculosis, an additional appropriation from the city for the dispensary work or direct appeals to the public. If an appropriation is asked by the trustees from the city it should be at least five hundred dollars, better

one thousand dollars, and should be placed in the hands of the trustees "for tuberculosis work."

## V. Summary.

During the first year of work *one hundred and forty-one cases of definite pulmonary tuberculosis* have come under the dispensary care, forty-four of them incipient cases. Nearly *sixty* patients have for a longer or shorter period *received institutional care* in hospitals and *over forty have been under* the *regular supervision* of the dispensary at their homes. In all about *four thousand visits* have been made by the nurses for the purpose of relieving suffering and improving home conditions. Over a thousand dollars has been spent in the relief of necessities of these patients through the Albany Committee on the Prevention of Tuberculosis. The education of the public through the visits of the nurse and the distribution of literature has also been considerable. To some degree the various functions of a tuberculosis dispensary have been fulfilled. This would have been impossible without the co-operation of many institutions and workers, including physicians, nurses and volunteers. The dispensary can accomplish practically nothing by itself. Only as it co-operates with other forces in the anti-tuberculosis campaign is it of value.

For the future better quarters, more workers and more supplies are needed. Private gifts to the South End Dispensary may be made for this purpose and public support would certainly be in order.

## VI. Municipal Support for Dispensary Work in Other Cities.

*Boston* makes an annual appropriation to tuberculosis work, pays for dispensary quarters, pays the salary of tuberculosis nurses, provides paper napkins, paper bags and other preventive supplies to patients.

*New York* has a special appropriation, maintains dispensaries, pays $75 a month for each of the tuberculosis nurses, provides sputum cups, supplies, etc.

*St. Louis* appropriates $25,000 a year for the work, maintains dispensaries and provides sputum cups and supplies.

*Rochester* pays tuberculosis expenses out of its health fund,

pays the salaries of two nurses and furnishes sputum cups and supplies.

*Syracuse* appropriates $5,000 a year for the tuberculosis work, maintains tuberculosis dispensaries, pays the $800 salary of a nurse and provides sputum cups and supplies for patients.

Other cities doing practically these same things are Detroit, Worcester, Mass., Schenectady, etc.

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# Public Health

**Edited by Joseph D. Craig, M. D.**

BUREAU OF VITAL STATISTICS.

DEPARTMENT OF HEALTH — ALBANY, N. Y.

ABSTRACT OF VITAL STATISTICS, OCTOBER, 1909.

*Deaths.*

| | 1905 | 1906 | 1907 | 1908 | 1909 |
|---|---|---|---|---|---|
| Consumption | 20 | 16 | 19 | 22 | 13 |
| Typhoid fever | 2 | 0 | 2 | 0 | 1 |
| Scarlet fever | 0 | 0 | 1 | 0 | 2 |
| Measles | 0 | 0 | 0 | 0 | 0 |
| Whooping-cough | 0 | 0 | 1 | 0 | 1 |
| Diphtheria and croup | 4 | 1 | 3 | 2 | 2 |
| Grippe | 0 | 0 | 0 | 0 | 0 |
| Diarrheal diseases | 4 | 5 | 1 | 1 | 1 |
| Pneumonia | 7 | 5 | 12 | 1 | 8 |
| Broncho-pneumonia | 8 | 0 | 0 | 2 | 4 |
| Bright's disease | 8 | 18 | 14 | 11 | 14 |
| Apoplexy | 14 | 11 | 9 | 7 | 7 |
| Cancer | 4 | 7 | 9 | 13 | 6 |
| Accidents and violence | 3 | 13 | 6 | 8 | 12 |
| Deaths over seventy years | 17 | 33 | 24 | 18 | 30 |
| Deaths under one year | 17 | 12 | 9 | 16 | 15 |
| Total deaths | 135 | 141 | 147 | 136 | 136 |
| Death rate | 15.88 | 16.59 | 17.30 | 16.00 | 16.00 |
| Death rate less non-residents | 13.65 | 14.35 | 15.65 | 14.12 | 14.12 |

*Deaths in Institutions.*

| | 1905 | | 1906 | | 1907 | | 1908 | | 1909 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Resident | Non-resident | Resident | Non-resident | Resident | Non-resident | Resident | Non-resident | Resident | Non-resident |
| Albany Hospital | 8 | 7 | 9 | 9 | 15 | 4 | 7 | 9 | 14 | 11 |
| Albany Orphan Asylum | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| County House | 2 | 2 | 1 | 0 | 1 | 2 | 6 | 1 | 1 | 4 |
| Homeopathic Hospital | 2 | 0 | 1 | 0 | 1 | 0 | 2 | 1 | 6 | 1 |
| House of Shelter | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| Home for the Friendless | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| Little Sisters of the Poor | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 2 | 0 |
| Child's Hospital | 0 | 0 | 1 | 0 | 1 | 1 | 2 | 0 | 1 | 1 |
| St. Frances De Sayles Orphan Asylum | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| St. Margaret's House | 6 | 5 | 0 | 1 | 0 | 1 | 1 | 0 | 3 | 3 |
| St. Peter's Hospital | 2 | 2 | 5 | 2 | 7 | 3 | 3 | 1 | 3 | 3 |
| Austin Maternity Hospital | .. | .. | .. | .. | .. | .. | .. | .. | 1 | 0 |

| | |
|---|---|
| Births | 75 |
| Still births | 7 |
| Premature births | 1 |

## Bureau of Plumbing, Drainage and Ventilation.

In the Bureau of Plumbing, Drainage and Ventilation there were two hundred inspections made, of which sixty-one were of old houses and one hundred thirty-nine new houses. There were ninety-three iron drains laid, forty-one connections to street sewers, thirty-nine tile drains, one cellar drain, forty-seven cesspools, eighty-two wash basins, eighty-three sinks, seventy-nine wash trays, seventy-one bath tubs, one butler's sink, three trap hoppers, one hundred fifteen tank closets, eleven slop hoppers, nine shower baths. There were one hundred six permits issued, of which eighty were for plumbing and twenty-six for building purposes. Forty-four plans were submitted of which eleven were of old buildings and thirty-three of new buildings. There were three houses tested with blue or red, and there were thirty-four water tests. Thirty-three houses were examined and fifty were re-examined. Seventeen complaints were found to be valid and seventeen without cause.

## Bureau of Contagious Diseases.

*Cases Reported.*

| | 1905 | 1906 | 1907 | 1908 | 1909 |
|---|---|---|---|---|---|
| Typhoid fever | 10 | 3 | 10 | 3 | 15 |
| Scarlet fever | 22 | 10 | 6 | 3 | 26 |
| Diphtheria and croup | 24 | 20 | 39 | 11 | 17 |
| Chickenpox | 0 | 0 | 1 | 3 | 2 |
| Measles | 0 | 3 | 2 | 0 | 9 |
| Whooping-cough | 0 | 0 | 0 | 0 | 0 |
| Consumption | 4 | 0 | 22 | 28 | 16 |
| Totals | 60 | 36 | 80 | 48 | 85 |

*Contagious Diseases in Relation to Public Schools.*

| | Reported | | Deaths | |
|---|---|---|---|---|
| | D. | S.F. | D. | S.F. |
| Public School No. 3 | 2 | 1 | .. | 1 |
| Public School No. 5 | 1 | .. | .. | .. |
| Public School No. 6 | .. | 3 | .. | .. |
| Public School No. 8 | .. | 1 | .. | .. |
| Public School No. 10 | 1 | .. | .. | .. |
| Public School No. 11 | .. | 1 | .. | .. |
| Public School No. 12 | .. | 1 | .. | .. |
| Public School No. 15 | .. | 1 | .. | .. |
| High School | 1 | .. | .. | .. |
| N. Y. S. Normal School | 1 | .. | .. | .. |

Number of days quarantine for diphtheria:

Longest..... 22 Shortest..... 9 Average..... 14 6/9

Number of days quarantine for scarlet fever:

Longest..... 38 Shortest..... 10 Average..... 23 5/10

Fumigations:

Houses..... 32 Rooms..... 134

| | |
|---|---|
| Cases of diphtheria reported | 17 |
| Cases of diphtheria in which antitoxin was used | 16 |
| Cases in which antitoxin was not used | 1 |
| Deaths after use of antitoxin | 2 |

BENDER REPORT ON TUBERCULOSIS.

| Positive | Negative | Failed | Total |
|---|---|---|---|
| 8 | 28 | 0 | 36 |

*Tuberculosis.*

| | | | |
|---|---|---|---|
| Living cases on record October 1, 1909 | | | 407 |
| Reported during October, 1909: | | | |
| By telephone | 2 | | |
| By Bender | 4 | | |
| By card | 9 | | |
| | | 15 | |
| Dead cases reported by certificate | | 3 | |
| | | | 18 |
| | | | 425 |
| Dead cases previously reported | | 9 | |
| Dead cases not previously reported | | 3 | |
| | | | 12 |
| Living cases on record November 1, 1909 | | | 413 |
| Total tuberculosis death certificates filed October, 1909 | | | 11 |

BUREAU OF PATHOLOGY.

*Bender Laboratory Report on Diphtheria.*

| | 1905 | 1906 | 1907 | 1908 | 1909 |
|---|---|---|---|---|---|
| Initial positive | 17 | 13 | 28 | 16 | 37 |
| Initial negative | 32 | 38 | 38 | 26 | 70 |
| Release positive | 8 | 1 | 33 | 13 | 30 |
| Release negative | 12 | 19 | 57 | 32 | 69 |
| Failed | 0 | 13 | 19 | 1 | 4 |
| Total | 69 | 84 | 175 | 88 | 210 |
| Test of sputum for tuberculosis: | | | | | |
| Initial positive | | | 4 | 3 | 12 |
| Initial negative | | | 13 | 10 | 29 |

BUREAU OF MARKETS AND MILK.

| | |
|---|---|
| Market re-inspections | 90 |
| Public Market inspections | 18 |
| Fish markets inspected | 6 |

MISCELLANEOUS.

| | |
|---|---|
| Mercantile certificates issued to children | 36 |
| Factory certificates issued to children | 21 |
| Children's birth records on file | 57 |
| Number of complaints of nuisances | 33 |
| Privy vaults | 1 |
| Plumbing | 18 |
| Other miscellaneous complaints | 14 |
| Total number of dead animals removed | 935 |
| Cases assigned to health physicians | 69 |
| Number of calls made | 128 |

# Society Proceedings

MEDICAL SOCIETY OF THE COUNTY OF ALBANY.

The semi-annual meeting of the Medical Society of the County of Albany was held at the Albany Medical College, Wednesday evening, October 13, 1909. Meeting was called to order at 8.30 o'clock by the President, Dr. Andrew MacFarlane.

The following members were present: Drs. J. L. Archambault, L. Archambault, A. J. Bedell, Blatner, Case, Cook, Corning, Cronin, Curtis, Griffen, Gutmann, Herrick, Holding, Hinman, Jenkins, Laird, Lanahan, Lawyer, Lempe, Lomax, MacFarlane, McKenna, C. H. Moore, Morrow, Munson, Murray, Neuman, O'Leary, Jr., Page, Papen, Sr., Papen, Jr., Rooney, H. Rulison, L. H. Rulison, Traver, Ullman, E. A. Vander Veer, J. N. Vander Veer. (38.)

The minutes of the annual meeting were read and approved.

Dr. MURRAY reported for the Comitia Minora that the applications for membership submitted had been approved by the Board of Censors,

and that the books of the County Clerk had been examined, the following having registered since May:

| Name. | College. | Licensed. | Registered. |
|---|---|---|---|
| Percy Farrington Miller | L. I. C. H. '06 | June 22, 1906 | June 18. |
| Eddy Stearns Haswell | A. M. C. '09 | May 21, 1909 | June 28. |
| Burlin George McKillipp | A. M. C. '09 | May 21, 1909 | June 28. |
| Henry Blacklidge Gillen | A. M. C. '09 | May 21, 1909 | June 29. |
| William Charles Conway | A. M. C. '09 | May 21, 1909 | July 6. |
| Edward Johnson Abbott | A. M. C. '09 | May 21, 1909 | July. 8 |
| Gilbert Charles Fish | A. M. C. '09 | May 21, 1909 | July 9. |
| Guiseppe Montandon | Univ. Naples '09 | February 1, 1907 | August 6. |
| Clarence Howard White | Univ. Mich. '09 | Lic. Mich. End. 8-12-09 | August 12. |
| Morris Bellin | A. M. C. '09 | June 25, 1909 | August 14. |
| Neil Bertram Palen | A. M. C. '09 | May 21, 1909 | September 9 |
| Charles Augustin Davis | Univ. Vt. '05 | Lic. Vt. End. 9-30-09 | October 2. |
| William Henry Grinnell | Univ. Vt. '97 | Lic. Vt. End. 9-8-09 | October 8. |
| Joseph Lewi Donhauser | A. M. C. '07 | April 24, 1907 | October 13. |

The report of the Comitia Minora and Board of Censors was accepted.

The Treasurer submitted the following report:

Mr. President and Gentlemen:

During the summer, at the instance of the President, this appeal was sent to all the physicians of Albany.

*To the Physicians of Albany.*

Gentlemen:—

Miss Elizabeth Hogan was a nurse in Albany for several years and for more than two years connected with the Albany Guild.

During November and December last she was in charge of the tuberculosis visiting work, contracted herself tuberculosis and was compelled to stop work in January.

During April, May and June her expenses, while taking the treatment, were paid by the relief committee of the Albany Branch of the State Charities Aid Association.

She is now at the Adirondack Cottage Sanitarium, where her expenses are twelve dollars a week.

All who have seen anything of her work know that it was highly efficient and most sympathetic.

This opportunity is presented to us.

Our Treasurer, Dr. D. V. O'Leary, Jr., 10 Ash Grove Place, will gladly receive subscriptions and forward them to Miss Hogan with the best wishes of the profession.

Andrew Mac Farlane, President.

Jos. A. Lanahan, Secretary.

In reference to this fund the Treasurer desires to make the following report:

| | |
|---|---|
| Received | $62 00 |
| Expenditures | 10 00 |
| *On hand | $52 00 |

Respectfully submitted, D. V. O'Leary, Jr.

*This balance has been sent to the Adirondack Sanitarium since the semi-annual meeting.—D. V. O'Leary, Jr.

The report of the Treasurer was accepted.

No committees reported at this meeting.

Dr. Murray of the Board of Censors moved the election of the following applicants: Edward Johnson Abbott, Joseph Lewi Bendell, Joseph Lewi Donhauser, Nelson Kaufman Fromm, Eddy Stearns Haswell, Clinton Benjamin Hawn, John Francis Heffernan, Harry Erle Mereness, Jr., James Charles Sharkey.

Moved and seconded that the Secretary cast one ballot for the applicants named. Motion carried, the Secretary cast the ballot and Drs. Abbott, Bendell, Donhauser, Fromm, Haswell, Heffernan, Hawn, Mereness and Sharkey were declared elected to membership.

Dr. Murray proposed the name of Dr. John Batten, of Westerlo, N. Y., for membership. Dr. Elting proposed the name of Dr. Julia McNutt. These names were referred to the Board of Censors.

The President announced his committees: Public Health—Drs. Craig, Cook, Curtis; Legislation—Drs. Root, H. Bendell, Cox; Milk Inspection—Drs. Boyd, Shaw, Winne, and Dr. Ordway of the Bender Laboratory.

The Vice-President, Dr. A. H. Traver, then delivered his Address: "The Exaggerated Fear of the Hospital and Operations."

Dr. J. L. Archambault moved a vote of thanks of the Society for the very excellent address of the Vice-President, requesting a copy for the records of the Society. Motion carried.

Dr. Jenkins:

I was interested in Dr. Traver's paper, especially in his citation of the case of supposed carcinoma removed by a caustic paste. I believe I have seen that patient, Mrs. B., and while examining her chest one day, missed the breast and inquired what had become of it. I was told that she had had it removed for a cancer by an application of a paste for six weeks. I had never seen a case where a cancer had been effectually removed by a paste, and I am gratified to know that it was not a cancer, as Dr. Traver says it was an adenoma which could have been removed under cocaine.

In regard to unnecessary operations, I have lately experienced an unhappy time due to them. I had a case of cancer of liver which to me was perfectly clear and called in the surgeons, hoping they would agree with me and let it go at that, however both surgeons consulted advised exploratory incisions, which after much discussion was done, with a prompt death following and considerable expense. We should be able to diagnose sufficiently to prevent any such procedure.

House physicians can do a great deal to overcome the dislike to a hospital and when I was interne I noticed that patients usually suffered greatly for two or three days after entering the hospital, but only for two or three days. Afterwards they were all right. I remember one old Irish lady, a very fine old lady, came in for the removal of a cataract, who suffered intensely from fear and could not be assured, until I spoke a few words of the Irish language to her, when she immediately brightened up, became cheerful and spent a pleasant time until she left the institution.

On another occasion I found a man sitting in the corner of the waiting room trembling with fear, apprehending, possibly, all kinds of tortures. His facial characteristics were familiar and I recognized the breed, so I spoke to him in Welsh which immediately put him at ease.

One case, I remember, could not be solaced, and questioning the patient, why she was so fearful, she replied, "Why, think of all you great men who are here." Of course, I could not say we were not great men.

The President said: The newspapers especially should be taught new methods of medical reporting, so that we may have less scare headlines such as "Died After Operation," or "Died Without Physician's Aid." We have as guest from New York at request of the Comitia Minora, and especially of Dr. Traver, one who knows something of Albany and of Albany graduates, and we shall be glad to hear from Dr. Frederick Brush, Superintendent of the Post-Graduate Hospital.

Dr. Brush read paper on "New Method of Medical Reporting."

Dr. Curtis said: Dr. Brush manifestly is an impressionist. In a most entertaining way Hopkinson Smith lectures on Realism and Impressionism in Literature and Art; and he contrasts the style of De Maupassant, sketching the entire picture of his story within the compress of a few paragraphs, with Charles Dickens lingering page after page on the precedence of the cricket or the kettle, while Mrs. Peerybingle flits about during the duet in pattens and stockings whose neatness calls for the minutest detail. How to present a subject is an important theme for consideration. We must have our interchange of opinion and contributions of personal observation. The medical society must exist for this purpose, and we must have our medical journals. How to relieve them of tedium and make them effective is a vital question. We know the prolixity and the infinite detail of too many papers and periodical articles. So likewise to a degree, with the medical school teaching, but the case of the undergraduate is not the same. With the active practitioner it may be assumed that he is already informed regarding much that too often fills the paper or the article. The work of writing and of teaching in medicine is for the most part done by men to whom it is only the by-play of their active life, and of necessity it must be so. It takes training and time as well to write and speak concisely. There can be no doubt though that the interest and value of these essential agents of our professional discrimination of knowledge. The society and the journal, will be far more advanced by reform directly along this suggested line of conciseness of expression.

Dr. J. L. Archambault said: I wish to add but a few words to the remarks of Dr. Curtis. Not only will I admit with him that Dr. Brush is an impressionist, but I believe that he has also been somewhat humoristic in his demonstration of the way a medical report, and, for that matter, any medical paper, should be written. We are indeed all agreed that the writer should be terse, concise, and that he should endeavor to give to what he has to say the most condensed form. But this condensation of one's thoughts under heavy pressure is no easy problem. Once, an address was delivered, it was a splendid address, but it was

rather lengthy. As it was commented upon, the writer retorted: "Yes, I know, I am sorry, I meant to write a short paper, but I had not time to do it." The short paper is no doubt the ideal paper, but like all ideals it stands high and is hard to reach; only a very few can get there. A short paper is not either always what the word means; a paper may be short and yet be ominously and desperately long, for obvious reasons. On the other hand, a long paper may not appear lengthy. And here, what Dr. Curtis said should be cheerfully endorsed: that a man may talk half an hour, and a whole hour, and not be long, provided he keeps saying something; something good, sound and solid; something full of marrow from start to finish. Quite recently, there was held in New York a meeting of one of the foremost medical societies in the country; a society which indeed represents the intellectual *élite* of our profession. The president, no young man, no novice in the art, delivered an address. The address was decidedly lengthy. Was it too long? I am told that, from first to last, the attention of every one present was pinned, literally riveted, to every word spoken. Throughout it was a fascination. Nobody ever noticed that it had lasted over an hour, but the speaker was—Weir Mitchell!

Thus, we should have the highest appreciation of the views expressed by Dr. Brush and be ever so thankful to him for the forcible and convincing manner in which he has presented his subject, and yet we should be careful not to give way to abstention because ideal methods are not the gift of many, and we should not fail to contribute our little mite, even under coarse cover, to the general store of knowledge.

I move, Mr. President, that a vote of thanks be extended to Dr. Brush for his kindness in coming here tonight and delivering before this meeting so valuable an address.

Dr. Corning said: For some time past I have collected gems from the papers, and here are two specimens of newspaper medical reports.

BRAIN EXPOSED; LIVES.

J. P., who was hurled about by a belt and garnet machine yesterday, is still alive. His injuries included a fracture of the skull, exposing the brain, arm broken in several places, and a cut that extended from the top of his head to his lower jaw. He was thrown, mangled as he was, into a mass of dirt, and the dirt was clotted on the brain and under the skull. Nevertheless, the surgeons succeeded in holding his life in, and today the man was doing nicely. There is a small boil on the man's head, however, and infection may spread from this. The case is one of the most remarkable in the local hospital for a long time. Why the man didn't die instantly is a wonder, yet today, when his wound was dressed, he sat up in bed by his own strength in order that a nurse might clip the bandage away. Of course, he was made to lie right down again. The incident indicates one of the brain's uncertainties when it is injured.

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I think it indicates more than that. The second report must be of vital importance to surgeons, as it displays a wealth of anatomical knowledge hitherto unattained.

## MAY LIVE WITHOUT HIS GANGLION NERVE.

Reported Cured by Doctors After Dangerous Operation—Loss of Right Eye Averted Though Side of Head is Paralyzed —Neuralgia Relieved.

Driven to desperation by four years of almost incessant pain from tic douloureaux, or facial neuralgia, J. H. has staked his life against one of the rarest and most dangerous operations in surgery—and has won. Today he was reported by the doctors as cured of his pain and well on the road to health, consequent on the removal of his entire ganglion nerve. This nerve is on the right side of the head and extends from the jaw to the brain. It is one of the most important in the human system.

When he was told by a distinguished * * * surgeon his only hope of relief lay in the removal of the ganglion nerve, with the chances 10 to 1 in favor of death under the knife, the victim, who had several times faced suicide, said he'd willingly take the chance.

* * * The surgeon then removed the entire nerve from H's. head by cutting beneath the skull. The patient remained in a precarious condition for a week or more, but afterwards steadily improved. One side of H's. face is entirely paralyzed, however, and it was feared that he might lose the sight of his right eye. This, however, has been averted.

When H. had his first attack of neuralgia, four years ago, he thought it was only a toothache. In the effort to stop his pain he had one tooth after another pulled, until none remained in his lower jaw on the right side. * * * The intense pain kept him awake night after night. * * *

Becoming frantic he swallowed a full pint of bromide of potash, which he afterwards learned was enough to kill ten men. His life was saved by antidotes. * * *

Dr. Corning seconded motion for vote of thanks. Motion carried. President extended the thanks of the Society to Dr. Brush.

President announced the programs for the year.

Election of Delegate to the State Society was called in place of Dr. S. B. Ward.

Dr. E. A. Vander Veer nominated Dr. Ward.

Dr. Neuman moved the nominations be closed and the Secretary cast one ballot for Dr. Ward. Motion carried, the Secretary cast the ballot and Dr. Ward was declared elected Delegate to the State Society.

President called attention to the error in electing a Delegate to the District Branch at the annual meeting and declared that election void.

President read By-Laws *as printed*, which provided that delegate "be elected at the annual meeting," also reading from the Annals report of meeting of May 8, 1907, "Dr. Curtis called attention of the members to a typographical error in the printed copy of the By-Laws, Section 2 and Chapter 5, which should state that the delegates to the District Branch shall be elected at the semi-annual meeting instead of the annual meeting as it now reads."

President called for nominations for Delegate to the Third District Branch in place of Dr. C. E. Whitbeck, deceased.

Dr. HINMAN nominated Dr. James F. Rooney.

Dr. LANAHAN said, since Dr. Lempe had been chosen at the wrong time it was proper that at least for that reason he should be chosen now, and nominated Dr. George G. Lempe.

Dr. E. A. VANDER VEER, quoting By-Laws, saw no reason why election should be declared void.

President read Dr. Curtis's remarks in minutes of annual meeting, 1907, and asked Dr. Curtis as to his recollection of that meeting. Dr. Curtis stated that the purpose of the By-Law was to have all delegates elected at the same time.

Dr. NEUMAN said, I was a member of the Committee appointed to draw up the By-Laws, Dr. Curtis was Chairman and Dr. Sampson was also a member. I do not remember the exact wording of that By-Law as reported. I do not think the printed report should be accepted, the written report is official and should be in the hands of the Secretary.

The original report being in the office of Dr. Lempe, former President, he offered to procure it.

Dr. ROONEY suggested that the present delegates be retained. Dr. Lempe questioned the legality of the actions of the Delegates who went to Hudson. Dr. Curtis said the statement he made at that time must have been correct, and that Dr. Lempe ought now be chosen regularly the Delegate.

Dr. BEDELL said, "we have not yet settled the question whether we accept the minutes of that meeting as correct."

Dr. BLATNER moved that, when we adjourn, we adjourn pro tem., and a committee be appointed with Dr. Curtis chairman to consider this matter and report at the adjourned meeting. Not seconded.

Dr. MORROW moved to lay the matter on the table. Not seconded.

Dr. ROONEY withdrew his name, proposed Dr. Lempe, and moved that the Secretary deposit one ballot for Dr. Lempe. Motion seconded.

Dr. E. A. VANDER VEER asked were not two elected at the annual meeting. President replied that there was only one vacancy.

Dr. COOK: "The more we discuss this matter the more confused we become. Dr. Curtis realized that a mistake had been made, and the By-Law was changed to rectify it."

Dr. LEMPE arriving with the original report it was found to contain the word "semi-annual" in place of "annual." Motion being called for it was put and carried, Dr. Griffen voting in the negative. The Secretary deposited the ballot and Dr. Lempe was declared elected delegate.

Dr. BLATNER asked how question was settled. President replied that election should be held at semi-annual meeting, the previous election was void and Dr. Lempe was now elected Delegate.

Dr. GRIFFIN asked if Dr. Papen was not elected at the annual meeting. President replied that that election was void and Dr. Papen was not regularly elected.

Dr. GRIFFIN moved to reconsider the vote on Dr. Rooney's motion,

but Dr. Griffin having voted in the negative on that motion, his motion was not allowed.

The following communications were read by the Secretary and on motion of Dr. Neuman were received and placed on file:

Medical Society of the State of New York,
New York, May 12th, 1909.

Dear Doctor:—

At a meeting of the Council held May 8th, 1909, the following resolutions were passed:

*Resolved*, that on and after July 1st, 1909, no member of the Medical Society of the State of New York shall receive the Directory, the New York State Journal of Medicine nor be entitled to mal-practice defense until his county and state assessment has been paid.

*Resolved*, that in order to encourage increase in membership for the year 1909, all members who are elected between Oct. 1st, 1909 and Dec. 31st, 1909, and who shall pay during that period their state assessment may have the same credited to 1910, provided that they request it. All whose assessments are so credited shall be entitled to mal-practice defense for 1909, but shall not be entitled to receive the Directory, or the Journal for 1909. State assessments so credited shall be immediately forwarded by the County Treasurers to the State Treasurer.

It is very desirable from every standpoint that the membership be greatly increased during the year and we sincerely hope that your Society will help us in this matter.

Yours very truly,
WISNER R. TOWNSEND, Secretary.

Dr. J. A. Lanahan, Secretary,
Med. Soc. of the County of Albany.

P.S. It is to be distinctly understood that the dates on these two resolutions are not in conflict, as one refers to prospective members and the other to present members.

National Food Magazine,
New York City, May 27, 1909.

Dr. A. J. Bedell,
Dear Sir:—

As the question of using chemical preservatives in food products is exciting such universal interest at the present time, there is a loud call for the opinion of the Medical Fraternity on the subject.

The reactionary food manufacturing interests are now clamoring for a return to the practice of using artificial preservatives without restraint of the food control authorities. But there is another element of manufacturers who declare that chemicals are not necessary to preserve good food material, when perfect sanitation prevails. They class artificial preservatives as drugs, fit only for medicinal purposes, to be administered only by competent physicians, and it is the physician—the man who makes a study of disease and its cause—who can tell us more authoritatively than anyone else, about the real effects of foods preserved with chemicals.

It is doubtless known to you that—based upon the opinion of a Special Government Commission, appointed by the insistence of the class of manufacturing interests first referred to—the authorities at Washington have issued a ruling under the National Food Law, permitting the unlimited use of Benzoate of Soda, generally agreed, we believe, to be a dangerous coal-tar drug when taken for an indefinite period in prepared foods.

Employed in foods where it cannot be detected by taste or smell, we learn that its principal use is to permit the cheap preservation of inferior raw materials and products carelessly prepared in indifferently clean surroundings.

Leaving out of consideration however, the fact that the presence of Benzoate of Soda usually indicates the kind of food one would not care to eat who saw it made and knew what it was made of—the question of real importance of course, is the possible injurious effect of this drug upon the health of the people. Upon this point, there is admittedly a conflict of opinion among scientists, and the opinions against its wholesomeness are so numerous and come from sources so eminent as to constitute at least, a doubt too grave in character, we think, to be ignored or lightly passed over.

In the presentation of this subject to your consideration by the *National Food Magazine* ("What to Eat"), our publication introduces itself in no new guise. The *National Food Magazins* has conducted an educational campaign for Food Purity for about fourteen years.

It was read and quoted freely upon the floor of the United States Senate, and was admittedly a potent influence in favor of National Food Legislation, when the National Food and Drugs Act was under consideration before that Body. Its work has twice received the endorsement by resolutions of the National Association of State Food and Dairy Commissioners. It was awarded Grand Prize and Gold Medal at the St. Louis World's Fair in appreciation of its effective work for Food Purity.

The Editor, your present correspondent, as Superintendent of the Exhibit of Foods at the St. Louis World's Fair, in his own columns, as a frequent correspondent for many of the great daily papers of the country, and in various other capacities, has consistently advocated the principle that drugs are not foods and that they should not be administered indiscriminately to the people by food manufacturers, and has by all proper means at his command, endeavored to promote legislation, and regulation under the Laws, to prohibit the use of artificial preservatives in foods and to promote better conditions of sanitation in food factories.

He has been able to bring together by personal effort, many of the larger and better class of food manufacturers into a powerful and growing Organization that aims for the elevation of standards in American prepared foods, the Members of which have subscribed to a platform and statement of principle, a copy of which is enclosed.

Artificial colors have been driven out. Food labeling has been improved to make it more honest, but many abuses remain.

But the eminent Commission—appointed unfortunately, at the behest of the reactionary food manufacturers, to consider the harmfulness or otherwise of Benzoate of Soda—seems to have dealt with the matter from a chemical standpoint only, as was anticipated at the outset, and their decision has been taken advantage of to perpetuate some of the gravest abuses of the past.

Today, by the action of the Government Officials at Washington, that Section of the National Food Law which aimed to secure freedom from adulteration and fraudulent cheapening, is practically nullified by the free admission into all foods of Benzoate of Soda as a preservative; and so far as the National Government is concerned, this drug may now be used in any quantity in meat, fish, milk, butter, cheese, vegetables, fruits and condimental foods—in fact, the entire list of our prepared food supplies.

Yet it is agreed by the best manufacturers that no artificial preservative (embalming substance) is required for the successful commercial preparation of good, sound, fresh raw material, by careful method under sanitary conditions.

It is admitted generally, and confirmed by Dr. Bitting of the Department of Agriculture, in Government Bulletin No. 119, of January 9th, 1909, that the principal use of Benzoate of Soda is to permit the employment of refuse and waste material. This material is the garbage of the canning factory, more often than otherwise half-rotten, sour and offensive at the outset; old, spoiled and vermin infested evaporated apples and other fruits, preserved and manufactured into attractive looking foods; and its manner of using in this way has been more fully and graphically described than it can be related here.

These are grave—not to say criminal—abuses, and the work of improving such conditions seems worthy of the attention of all public spirited professional men.

Many of the leading pathologists and chemists of the country have demurred from the decision of the Government Commission, either on the ground that it was not warranted by any facts ascertained during the investigation, or by the fact that the inquiry was not broad enough to be practical, in that it failed to cover the usual purpose of artificial preservatives in foods, or both. I take the liberty to enclose a few of these opinions, which I have been able to collect, as a matter of possible interest to you in this connection.

England, Germany, France, Italy, Austria and Spain, all have Food Laws condemning and restricting chemical preservatives in food products. The World's Pure Food Congress, recently held at Geneva, Switzerland, condemned chemical preservatives. Dr. H. W. Wiley, Chief of the United States Bureau of Chemistry, has submitted official reports denouncing them as extremely injurious. Similar action has been taken by the Association of State and National Dairy and Food Departments.

The press of the country, voicing popular sentiment, has shown re-

markable unanimity and moral courage in turning its batteries against the food adulterator and corrupt politician, in an ardent effort to bring about a Pure Food Era.

So far we have asked no assistance in our own work for Food Purity and Wholesomeness, but we are now about to inaugurate a new campaign for the education of the people on broader lines, by appealing to the medical profession of the country to help in this cause, which so intimately concerns the health of the Nation.

We are addressing this letter personally, to several thousand officers of Medical Societies throughout the country, asking that the subject of "Pure Food vs. Artificially Preserved Foods" may be taken up for an investigation, and a discussion at an early meeting of the present existing conditions, with a view to securing the passage of appropriate resolutions embodying whatever decision may be arrived at in that way; and the forwarding of a copy of these resolutions—regardless of the stand taken, whether favoring or opposing present conditions—to State Food Commissioners and to the local press—also, to their Representatives in Congress.

Your State Food Commissioner is working hard for the right. He desires to safeguard both the health of the people and the interest, so far as he may properly do so, of the food manufacturer. He needs your support and guidance. Will you give it by joining in this great movement for the education of the people and our Legislators in the right path, wherever that path is found to lie?

If there is any information that you desire concerning the attitude of the different classes of food manufacturing interests, food factory conditions, or detailed particulars regarding the Pure Food Movement in the past, please command me freely.

In the meantime, may I trouble you for an acknowledgement at your convenience, with advices as to what action you will take in this grave matter which I have the honor to present for your consideration?

Anticipating the courtesy of a reply, I am,

Very respectfully yours,

PAUL PIERCE,

Editor, *National Food Magazine.*

Enclosures: Medical Opinions; Platform of National (Manufacturers) Association for the Promotion of Purity in Food Products.

P.S. If you are not directly in personal touch or familiar with the work of the *National Food Magazine*, I shall be happy to have sent to you a sample copy, upon request.—P. P.

Albany, N. Y., Oct. 13th, 1909.

Albany County Medical Society:

The Central Federation of Labor Tuberculosis Pavilion is prepared to receive private patients at the rate of $7.00 per week. If preferred such patients may be attended by their own physicians.

Yours truly,

PHILIP V. DANAHY,

President of Board of Governors.

American Academy of Medicine.
Easton, Penn., Sept. 22, 1909.

Dr. A. T. Laird, 588 Madison Ave., Albany, N. Y.

My dear Doctor:—The committee having charge of a Conference on the Prevention of Infant Mortality is desirious of securing the co-operation of the profession throughout New York.

I am enclosing the preliminary notice and in the name of the Council extend a very cordial invitation to your County Medical Society to send one or more representatives to that meeting.

If you accept our invitation, will you kindly send me the names and addresses of your representatives that I may be able to send them additional literature as issued.

Very truly yours,
CHARLES MCINTIRE, Per. B.R.
Secretary.

Moved, seconded, and carried that the President be empowered to appoint delegates to represent the Society at the Conference of the American Academy of Medicine. No other business appearing the Society adjourned at 10.00 o'clock.

JOSEPH A. LANAHAN,
*Secretary.*

ANDREW MAC FARLANE,
*President.*

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## Medical News

**Edited by Arthur J. Bedell, M. D.**

ALBANY GUILD FOR THE CARE OF THE SICK—DEPARTMENT OF VISITING NURSES.—STATISTICS FOR AUGUST, 1909.—Number of new cases, 169; classified as follows: Dispensary patients receiving home care, 20; district cases reported by health physicians, 7; charity cases reported by other physicians, 47; moderate income patients, 95; old cases still under treatment, 125; total number of cases under nursing care during month, 294. Classification of diseases for the new cases: Medical, 53; surgical, 8; gynecological, 1; obstetrical under professional care, mothers 49, infants 45; eye and ear, 1; skin, 0; throat and nose, 0; contagious diseases in the medical list, 13; removed to hospital, 6; deaths, 8.

*Special Obstetrical Department.*—Number of obstetricians in charge of cases, 1; medical students in attendance, 2; Guild nurses in attendance, 2; patients, 6; visits by attending obstetrician, 5; visits by students, 28; visits by nurses, 34; total number of visits for this department, 77.

*Visits of Guild Nurses*—(all departments): Number of visits with nursing treatment, 1,441; for professional supervisions of convalescents, 283; total number of visits, 1,724; cases reported to the Guild by three health physicians and forty-five other physicians, graduate nurses 7, and pupil nurses 11 on duty.

*Dispensary Report.*—New patients, 125; old patients, 400; total, 525. Clinics classified as follows: Eye and ear, 9 clinics; surgical, 12 clinics; skin and G. U., 16 clinics; nose and throat, 16 clinics; children's, 12 clinics; medical, 12 clinics; gynecological, 8 clinics; lung, 13 clinics; nervous, 4 clinics; stomach, 4 clinics; dental, 1 clinic.

*Lectures Given Since February,* 1909.—Anatomy, four by Dr. A. H. Traver; dermatology, three by Dr. J. Lenahan; materia medica, three by Dr. L. S. Dawes; antitoxins and immunity, one by Dr. C. B. Hawn; physiology and hygiene, two by Dr. A. E. Page.

The American Journal of Surgery will produce in December a Philadelphia issue of their journal, the subject-matter of which will be composed entirely of contributions from among the leading men of that city. Among the subjects to appear and their contributors are as follows: "A Consideration of the Diagnosis and Treatment of Retro Displacement of the Uterus," by E. E. Montgomery, M. D., Professor of Gynecology, Jefferson Medical College; "Polypoid Growth of the Rectum and Report of a Recent Case," by Lewis Adler, Jr., M. D., Professor of Diseases of the Rectum, Philadelphia Polyclinic; "Tumors of the Urethra in Women," by Barton Cooke Hirst, M. D., Professor of Obstetrics, University of Pennsylvania; "The Control of Hemorrhage During Pregnancy," by Edward P. Davis, M. D., Professor of Obstetrics, Jefferson Medical College; "Cyclodialysis," by Walter L. Pyle, A. M., M. D., Ophthalmologist to the Mt. Sinai Hospital, Assistant Surgeon of Willis Eye Hospital, etc.; "Roentgen Treatment of Malignant Diseases," by Charles Lester Leonard, A. M., M. D., ex-President of the American Roentgen Ray Society; "The Conservation of the Middle Turbinated Body," by William A. Hitschler, M. D.; "The Diagnosis and Treatment of Ectopic Pregnancy," by F. Brooke Bland, M. D. The following well-known surgeons will also contribute and their titles will be announced at a later date: Ernest La Place, A. B., A. M., M. D., Professor of Surgery, Medical Chirurgical College; Prof. William Campbell Posey, Professor of Ophthalmology, Philadelphia Polyclinic; John G. Clark, M. D., Professor of Gynecology, University of Pennsylvania; H. M. Christian, M. D., Clinical Professor of Genito-urinary Diseases, Medical Chirurgical College; John A. McGlinn, A. M., M. D., and others.

Army Medical Corps Examinations.—The Surgeon-General of the Army announces that the first of the preliminary examinations for the appointment of first lieutenants in the Army Medical Corps for the year 1910 will be held on January 17, 1910, at points to be hereafter designated. Full information concerning the examination can be procured upon application to the "Surgeon-General, U. S. Army, Washington, D. C." The essential requirements to securing an invitation are that the applicant shall be a citizen of the United States, shall be between twenty-two and thirty years of age, a graduate of a medical school legally authorized to confer the degree of doctor of medicine, shall be of good moral character and habits, and shall have had at least one year's hospital training or its equivalent in practice after graduation. The examinations will be held

concurrently throughout the country at points where boards can be convened. Due consideration will be given to localities from which applications are received, in order to lessen the traveling expenses of applicants as much as possible.

The examination in subjects of general education (mathematics, geography, history, general literature, and Latin) may be omitted in the case of applicants holding diplomas from reputable literary or scientific colleges, normal schools or high schools, or graduates of medical schools which require an entrance examination satisfactory to the faculty of the Army Medical School.

In order to perfect all necessary arrangements for the examination, applications must be complete and in possession of the Adjutant-General on or before January 3, 1910. Early attention is therefore enjoined upon all intending applicants. There are at present eighty-one vacancies in the Medical Corps of the Army.

Waste of Children's Lives.—American race waste—more serious than race suicide—is pointed out in Census Mortality Bulletin No. 104, in which it is estimated that annually in the United States from 100,000 to 200,000 babies under five years of age die from preventable causes. This great loss of life among the little ones at the period when they are most loving and most lovable could be prevented, is the opinion of Dr. Cressy L. Wilbur, chief statistician for vital statistics of the Census Bureau, who prepared the bulletin, on the basis of present-day knowledge of sanitary measures. For the accomplishment of effective preventive work in this direction, Dr. Wilbur holds that the prompt registration of all births and the more careful and precise statement of causes of death by physicians are essential.

In analyzing and comparing the totals obtained in the compilation of transcripts of death returns received for the year 1908 by the Census Bureau from the entire death-registration area of the United States, as set forth in the bulletin, those for age periods show a somewhat increased per cent. of deaths of infants under one year for 1908, although the ratios for each of the individual years from one to four are identical for 1907 and 1908. Of the total number of deaths, 691,574 returned for 1908 from the entire registration area, it is stated in the bulletin that nearly one-fifth were infants under one year of age and over one-fourth of children less than five years of age. It is declared that the brute force of the figures representing the actual deaths is more impressive, however, than any ratios or than the rates of infant mortality, even if the latter could be computed in the absence of proper registration of births. Here are the figures:

More than one-eighth of a million babies, under one year of age and fully 200,000 children, under five years of age, died among about one-half of the total population of the United States in the year mentioned. It is considered probable that fully 200,000 more died in those cities and States not included in the Census Bureau death-registration area. In this connection Dr. Wilbur quotes Prof. Irving Fisher's conclusion that of all the diseases of infancy, having the medium age one year, 47 per cent. may

be prevented; and that of the diseases of childhood having medium age two to eight years, 67 per cent. may be prevented.

"It does not seem unreasonable," Dr. Wilbur states, "when we consider the fact that there is apparently no reason why infants, if properly born, and this means simply the prevention of ante-natal disease and the improvement of the health and conditions of life of their parents, should die at all in early infancy or childhood, except from the comparatively small proportion of accidents that are strictly unavoidable."

The bulletin continues with a statement that the general death rate of a country is largely dependent upon its infant mortality, because the death rates of infants and young children are high and they affect a relatively numerous element of the population. Exact study of the incidence of disease upon infancy and childhood is most important, and it is imperatively necessary that there should be more effective registration of births throughout the United States for this purpose. The extremely important rate known as "infant mortality" is the ratio of deaths of infants under one year of age, not to population but to the number of children born alive during the year. This most important ratio should be readily available for the comparative study of deaths of infants in all of our States and cities, but, the bulletin states, in the great majority of them, unfortunately, the registration of births is worthless, and ratios calculated upon the returns would be deceptive and unreliable.

"The possibility of great saving of human life during infancy and early childhood is emphasized by the estimates made by Prof. Irving Fisher, on the basis of independent medical opinions, for his Report on National Vitality to the National Conservation Commission, as to the 'ratio of preventability (postponability),' that is, ratio of 'preventable' deaths from cause named to all deaths from cause named for certain diseases of early life.

"Out of every 100 deaths that occur from each disease in which the median age at death is under 5 years, there could be prevented the following numbers: Premature birth, 40; congenital debility, 40; venereal diseases, 70; diarrhœa and enteritis, the most important cause of infant mortality, 60; measles, 40; acute bronchitis, 30; broncho-pneumonia, 50; whooping cough, 40; 'croup' (which means diphtheria), 75; meningitis, 70; diseases of larynx other than laryngitis, 40; laryngitis, 40; diphtheria (under its proper appellation), 70; scarlet fever, 50.

"Other diseases especially fatal to infants and children would perhaps show equally great ratios of preventability; they do not appear in the above list because their median ages are above the limit chosen or because, as is the case with 'convulsions,' they are grouped with other and incongruous causes.

"The possible saving of life for 'general, ill-defined and unknown causes,' including 'heart failure,' 'dropsy' and 'convulsions,' median age 35 years, is 30 per cent. The median age of 'convulsions' alone is less than one year, and it is probable that at least the ratio of preventability of diarrhœa and enteritis (60 per cent.) would apply to it. The term is an indefinite one, being expressive merely of the symptoms attending

the true cause of death; nevertheless no fewer than 6,450 deaths were compiled therefrom for 1908, although, in compilation, any other definite cause is preferred. The term is no longer employed by well-informed physicians in reporting causes of death, and it is possible, by inquiry made by the local registrar immediately after the receipt of this and other unsatisfactory statements, to practically eliminate them from the returns, as has lately been done for Chicago.

"In the light of the figures quoted above it would seem that practical sanitation has only made a beginning in the work of preventing the occurrence of infant and child mortality. The ground has only been scratched over. Deep stirring of the soil and thorough cultivation of all the means available, with our present scientific and medical knowledge, for the guarding of young human lives would produce startling, and from all past human experience almost unbelievable, results. Public health, as a function of government, is itself only a creation of the middle part of the last century, dating from the utilization of the knowledge available as a result of the operation of the English laws for the registration of vital statistics (1837). Even in England, however, no systematic efforts have been made until very recent years to utilize to their utmost possibilities the facts already known. The infant mortality of England was higher for the years 1896 to 1900 than for the years 1861 to 1865, and no marked reduction in the early rates occurs until the present decade.

"It is time that greater attention be given to the subject in the United States. The prompt registration of all births and the more careful and precise statement of causes of death by physicians are essential. Such terms as 'convulsions,' 'marasmus,' 'debility,' and the like should no longer be tolerated when the true cause of death can be determined."

The American Society for the Study of Alcohol and Other Narcotics.—On Wednesday, October 27, 1909, at 2 p. m., at Wilton, Conn., a monument was unveiled by this Society to the memory of Dr. J. Edward Turner, of Wilton, Conn. (who founded and built the first inebriate asylum in the world, and who was the first to urge the practical fact that inebriety is a disease and curable in institutions). Dr. L. D. Mason, of Brooklyn, N. Y., president of the American Society for the Study of Alcohol and Other Narcotics, delivered a dedicatory address. Mr. H. O. Marcy, LL. D., M. D., of Boston, Mass., ex-president of the American Medical Association, delivered a historic address on "Heroes and Martyrs in Medical Science." The memorial address was delivered by Dr. T. D. Crothers, of Hartford, Conn., superintendent of Walnut Lodge Hospital, on "Dr. Turner, His Life and Work." Appropriate music and remarks by distinguished persons followed. The occasion was of great local and general interest.

The Medical Society of the County of Schenectady held a regular meeting at the county courthouse, Wednesday, November 17, 1909, at 8.30 p. m., when Dr. E. MacD. Stanton read a paper on "An Analysis of the Results of Treatment of Acute Intraperitoneal Infections."

THE NEW YORK AND NEW ENGLAND ASSOCIATION OF RAILWAY SURGEONS held their nineteenth annual meeting at New York Academy of Medicine, at New York City, November 16 and 17, 1909.

AMERICAN ACADEMY OF MEDICINE.—A conference on prevention of infant mortality was held in New Haven, Conn.. November 11 and 12, 1909. An interesting and highly profitable program was rendered under the general headings of medical prevention, philanthropic prevention, institutional prevention, educational prevention, and closing with the executive session of the American Academy of Medicine.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.—Amendments to the constitution and by laws. The following proposed amendments to the constitution and by-laws were submitted at the annual meeting held in Albany, January 25, 1909:

Amend the constitution, article 6, section 1, the section to read:

Section 1. The annual meeting of the Society shall be held beginning on the last Tuesday of September of each year.

Section 2. The time and place of the annual meeting shall be designated by the house of delegates.

Section 2, to become section 3.

Section 3, to become section 4.

Amend the by-laws, article 6, section 1. Strike out in full the whole section and substitute:

Section 1. The time and place of each annual meeting shall be fixed by the house of delegates at the preceding annual meeting.

Chapter IV, section 2. Strike out "the office of secretary and treasurer," and substitute any elective position not provided for in the by-laws.

Chapter VI, section 2. Add "and the other vice-presidents advanced in order."

PERSONAL.—Dr. J. E. DOIG (A. M. C., '99) is now located at Endicott, N. Y.

—Dr. JOSEPH F. HARRIS (A. M. C., '06) is practicing at 568 West One hundred and forty-ninth street, New York City.

—Dr. ANDREW MACFARLANE (A. M. C., '87) will on or about December 1st move from 198 Washington avenue to 274 State street, Albany, N. Y.

—Dr. S. R. MORROW recently purchased a new home at 255 Hamilton street, Albany, N. Y.

ENGAGEMENT.—Mr. and Mrs. William B. Van Zandt announce the engagement of their daughter, ETHEL JEAN, to Dr. CLINTON BENJAMIN HAWN (A. M. C., '06), of Albany, N. Y.

# Current Medical Literature

## NEW YORK STATE MEDICAL LIBRARY

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### Bibliography of Acute Anterior Poliomyelitis

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## MEDICINE

**Edited by Samuel B. Ward, M. D., and Charles K. Winne, Jr., M. D.**

*The Pathogenesis and Treatment of Hemophilia.* (*L'Hémophilie: Pathogénie et Traitement.*)

MARCEL LABBE. *Revue de Médecine, Vol.* XXVIII, *No.* 2, *February,* 1908.

Under the general term hemophilia are grouped two types of affections both characterized by a marked predisposition to induced or spontaneous hemorrhages. The former is so marked that the slightest injury may bleed indefinitely and is far more pronounced than the tendency to spontaneous hemorrhage, which may indeed be entirely absent. It is this point which differentiates hemophilia from certain forms of chronic purpura in which the spontaneous hemorrhages predominate over those which are induced. This distinction was first made upon purely clinical grounds but has been confirmed by careful hematological examinations which show that the condition of the blood in the two diseases is quite different.

The two types of hemophilia are: First, the cases occurring in families, often throughout many generations, usually only in the male members, the sons of women not so affected, and second, the cases occurring sporadically without hereditary influence. Clinically the individual cases in the two groups are exactly similar, but pathogenetically they are different.

The writer groups the theories of the causation of hemophilia under four headings as follows: 1. Vascular, 2. Circulatory, 3. Nervous, 4. Hematological. He discusses them all at length and concludes that the

only tenable theory is the hematological. This holds that the condition is due to some alteration in the blood which affects its powers of coagulation. It is now a well established fact that the coagulation time of the blood of hemophilics is greatly lengthened. The writer details several methods of testing this, with their respective disadvantages. He favors Weil's modification of Hayem's method, by which a considerable quantity (several cubic centimeters) of blood is obtained by means of a hollow needle direct from a vein, as by this means the details of the process of coagulation can be studied. This method also shows a difference between the two types of the disease.

In the sporadic form the bleeding is very rapid, the blood coming from the needle almost in a jet, the blood is very fluid, and the needle has no tendency to become clogged. In the family form the bleeding is not so rapid or so abundant, the blood appears to be very viscid, and the needle often becomes obstructed, though without the formation of a true clot. In both cases the coagulation time is much delayed and is preceded by a sedimentation of the corpuscles and the consequent separation of the blood into two layers. The sedimentation is more rapid in the sporadic cases, occurring in about a quarter of an hour, while in the hereditary form of the disease it is often delayed for one or two hours. The coagulation of the serum proceeds very gradually. In the first type it takes place in from three quarters of an hour to a period of an hour and a quarter, but in the family form it is delayed at times as long as nine hours. Various conditions seem to influence the time of coagulation; heat accelerates it, and after a patient has bled for some time the blood taken either at the point of initial hemorrhage or from elsewhere in the body coagulates much more rapidly, sometimes almost normally. The clot is retractile, and is generally dense but has a tendency to break up into small masses and flakes.

The reasons for this delay have been studied by many observers. Histological examination of the blood throws no light on the subject, for all cells are normal in form and number and there is no diminution in the amount of fibrin present. It is known that the coagulation of the blood is due to the action of a ferment or enzyme, "plasmase," on the fibrinogen, an albuminous substance in solution in the blood plasma, with the resulting formation of fibrin. This enzyme or ferment is secreted by the leucocytes when without the blood vessels: it is activated by certain substances called "kinases," and certain calcium salts play an important part in its formation. Thus the delay in coagulation of the blood might be due to one of three causes: 1. A diminution of the normal amount of fibrinogen. This cannot be the reason, for analysis shows a normal amount of fibrin present in the blood clots of a hemophilic. 2. A diminution of the normal amount of plasmase, or some imperfection in it due to an insufficiency of the pro-ferment or of calcium salts. 3. The presence of an anticoagulating substance. It has been found that here too the two types of the disease differ from one another. In sporadic hemophilia the delayed coagulation is due to an insufficiency in the plasmase, shown by the immediate production of normal coagulation upon the addition to the flowing blood of a small amount of normal serum, or the subcutaneous injection of fresh normal serum into the patient. The addition of calcium chloride

has but little effect in small doses in shortening the coagulation time and in large doses it is distinctly retarding. There is no anticoagulating substance in the blood of hemophilics of the sporadic type. In the family form the long delay is due to both an insufficiency in the plasmase and to the presence of an anticoagulant in the blood.

Besides these forms of hemophilia the writer reports two cases of his own in which the bleeding was apparently due to a vasomotor disturbance, an absence of contractility of the capillaries, for the blood itself showed none of the changes above described but clotted in an entirely normal manner. He, however, regards this form as of secondary importance to the great hemophilias.

The disease may be classified clinically as pure hemophilia, the sporadic or hereditary forms, and that associated with other pathological conditions of the blood, such as purpura, pernicious anemia, or that found in certain infectious diseases and intoxications, cholemia, nephritis, etc., nor is this association at all surprising when we regard them all as being more or less due to, or in turn causing, some alteration in the composition of the blood.

Treatment.—In order to arrest the hemorrhages many hemostatic methods, such as compression, elevation of the bleeding part, the use of the ordinary coagulants, perchloride of iron, antipyrine, etc., the injection of ergot or its glucosides, have been tried, but all usually fail. Adrenaline topically applied is often of service in checking local bleeding but the danger of secondary hemorrhages following its use is always present. It is at times used hypodermically, but if used in this way is rather dangerous. Gelatine is used as a local dressing in solution, as a food in amounts of 200 to 250 grams per day, or injected hypodermically or intravenously. These methods have been followed by varying success according to the person trying them. It is hard to see how the use of gelatine as a food can have any hemostatic action, as during the process of digestion it is changed into substances which have no coagulating power. From personal observation the writer places no value upon the use of gelatine injections, and furthermore considers them dangerous under certain circumstances. Hypodermoclysis has been tried but is without permanent value. Organic extracts, thyroid, liver, etc., have been used in injections or by mouth with varying success: usually, however, they cause a modification of the hemorrhagic state, though many of the reported cases seem to have been purpuric rather than hemophilic in nature. The use of calcium chloride or, as has been lately suggested, calcium lactate locally or by mouth, has often been of great value in these cases, and in the treatment of hemorrhages in general. Its action is to lessen the coagulation time, but it is not curative and the treatment must be indefinitely prolonged to be of benefit. Furthermore, the results are not constant and when the drug is taken for too long a time it sometimes has the opposite effect. It should be taken intermittently for three or four days only, with corresponding intervals. The writer has not been able to obtain satisfactory results from the use of calcium salts.

The latest treatment which has been introduced is that with blood-serum, locally or by injection. Several writers have reported cases thus treated with success. It is of especial value in the treatment of induced

hemorrhages from any cause and in sporadic and hereditary hemophilia; it is of little value in the treatment of the hemorrhagic diathesis associated with other conditions such as purpura and pernicious anemia. Weil, especially, has reported successful results with this treatment. In sporadic hemophilia one injection of ten to twenty cubic centimeters of fresh serum has completely overcome the hemorrhagic tendency so that it was possible to perform surgical operations upon these patients without especial bleeding. The coagulation time has been reduced from an hour and a quarter to the normal period of five minutes. The acquisition of its normal character appears in about forty-eight hours and persists in the blood for about five weeks; if the serum is again given at this time the same effects are produced as at the first injection. In hereditary hemophilia the results are less marked; the coagulation time is lessened but less so than in the other form. In one case reported by Weil it was reduced from nine hours to one hour, and in another from six hours to an hour and a quarter. A third case reported by this writer had bled an entire day from a cut on the face received while shaving; the bleeding stopped within a few minutes after he had received the injection, and a hematuria from which he had suffered for a month was much less on the following day and entirely ceased in three days. In these cases the favorable action of the serum persists not longer than a month.

The injections should be of fresh serum preferably human or from the horse or rabbit, given in doses of about ten to twenty cubic centimeters intravenously. If it is given subcutaneously twice this dose should be given. The dose should be repeated in four weeks. In default of the sera mentioned diphtheria antitoxin may be used, but the writer warns against the use of beef serum on account of the violent febrile reaction which it causes. The writer also warmly recommends the use of serum locally on tampons to arrest induced hemorrhages.

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*A Fatal Anemia With Enormous Numbers of Circulating Phagocytes.*

MARY G. ROWLEY. *The Journal of Experimental Medicine, Vol. X, No. 1, January,* 1908.

Phagocytosis of red blood cells, and to a lesser extent of white cells, has long been known to occur within the blood-making organs of the body in health, and to a greater degree in disease. Rowley reports a case which showed the occurrence of extensive phagocytosis in the circulating blood, involving a destruction of red blood cells so rapid that it was the probable cause of the fatal anemia which ensued. The writer is in doubt as to the cause of the phagocytosis but attributes it to the presence of auto-haem-opsonins in the serum.

The patient was a male, aged twenty-seven. The family and past history were good. His symptoms were those of anemia and broken compensation in organic heart disease. The physical examination showed aortic and mitral regurgitation, edema of the extremities, double hydrothorax, edema of the lungs, great cyanosis, clubbed fingers, and the urine of renal congestion. His illness was of about five or six months' duration, but he was under observation less than three months.

The chief interest of the case attaches to the blood findings. A very careful study of the blood in both dry stained smears and with the warm stage revealed the fact that very active phagocytosis of both the red and white cells was taking place by the large lymphocytes and by every variety of leucocyte known in normal blood as well as by myelocytes present and a type of cell similar to, if not identical with, that which is called a "plasma cell."

A study on the warm stage of the act of engulfing other cells by the neutrophilic leucocytes and the lymphocytes showed that quite a different method of procedure was used by the different types of cells. The lymphocytes spread out to a very large size, the nucleus enlarging at the same time. The cell then sent out protoplasmic processes varying more or less in length and thickness, the exact form of the cell changthem back into the phagocytic cell. The neutrophilic leucocytes on the other hand, sent out long very slender string-like processes which apparently started from the nucleus. These processes extended far out from the cells, often over several microscopic fields. They attached themselves to other cells, either red or white corpuscles, by hooking an end into the captive, or, when there were several of such processes, by spreading out over the captive like the fingers of a hand. The string then shortened and apparently receded into the nucleus whence it came, so that captive and captor were brought into close proximity. The protoplasm of the captor then flowed about the other cell although occasionally not taking it all in. The process of destroying the captive cells also varied according to the nature of the engulfing cell. The lymphocytes would repeatedly knead and squeeze the captive cells until they were broken up and their pieces scattered through the body of the phagocyte; these crushing movements of the protoplasm went on with machine-like regularity and at an approximately uniform rate. The captured cells sometimes seemed to fade away *in situ* as if some chemical process were taking place. In stained specimens the captive cells took quite a different color from the normal; occasionally neighboring cells also assumed this same abnormal shade as if some of the dissolving substance had been secreted by the cell. Red cells underwent the same process of destruction as the white cells. In the case of the neutrophilic phagocytes the process of destruction was apparently chemical; the mechanical process of compression was entirely absent. In some cases the protoplasm of the captor and captive apparently fused, the nuclei remaining distinct.

The writer noted that the blood plates were very greatly increased in all the specimens examined. During the process of engulfing other cells the phagocytes constantly lost pieces of their protoplasm which were indistinguishable from the plates in the stained specimens.

The rate of destruction of both red and white cells by the phagocytes was extreme. One lymphocyte was seen to destroy fifteen red cells in one-half an hour; another destroyed twenty-seven red cells and fourteen white ones in an hour, and one, watched for three hours, was seen to engulf and wholly or partially destroy sixty-seven red cells and twenty-four white cells. At the end of that time it was still active. This very

rapid and extreme destruction of cells easily accounts for the fact that the patient's red cells fell from 5,120,000 to 1,520,000 in less than three months. Since one cell destroyed twenty-seven red corpuscles in an hour, when the leucocyte count was 100,000 per cubic millimeter, if all were engaged in destroying cells at the same rate they could destroy all the red cells of the blood in two hours.

The writer found that the number of cells, both red and white, varied very greatly in the blood taken from different parts of the body at the same time, and thinks that it depended upon a varying rate of phagocytosis going on in different locations.

The number of leucocytes in the circulating blood varied from about 40,000 per cubic millimeter on admission, to nearly 800,000 just before death. The differential counts were always essentially normal, though the polynuclear cells were slightly below normal, at times more so than at others, and late in the disease the large lymphocytes increased quite markedly at the expense of all other cells, but especially of the small lymphocytes. Nucleated red cells were often present, towards the end almost constantly so.

In order to test the effect of the patient's blood in stimulating phagocytosis in other human blood, the writer mixed one part of the patient's blood with ten parts of normal human blood and observed the mixture under cover slips on a warm stage. On immediate observation very little phagocytosis was observable, but on allowing the specimen to stand for an hour a much greater number of cells were observed to be phagocytic and finally all the mononuclear cells were seen to be thus active. Animal experimentation with a similar purpose showed that five drops of the patient's blood diluted with salt solution and introduced subcutaneously into a guinea pig caused the mononuclear cells of the animal to become markedly phagocytic, fully two-thirds of them assuming this characteristic. Four weeks after the experiment was performed the animal's cells were still actively phagocytic, and in three months it was still present in slight degree. From these experiments and from the fact that all the various forms of leucocytes were to some extent at least phagocytic, the writer concludes that the cause of this very extraordinary condition was due to some change in the serum which either *opsonized* the red and white cells, or so stimulated the usual feeble phagocytic powers of the leucocytes of the normal blood that the above-mentioned phenomena were rendered possible, or that perhaps both influences were present.

Only one similar case has been reported in the literature, and this case curiously was also a Russian Jew living in Massachusetts.

The remarkable vitality of the phagocytes in the case reported by the writer is shown by the fact that blood diluted with Gower's solution and sealed up in a Thoma-Zeiss diluting bulb still showed actively motile and phagocytic leucocytes after three months.

An autopsy was not permitted in this case, but blood obtained post-mortem by puncture of the spleen and other organs showed nothing more than had been found in the circulating blood, except large numbers of giant cells in the splenic blood which curiously showed no evidence of phagocytosis.

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JANUARY, 1909

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